# TEXTILE TECHNOLOGY DIGEST

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# ABSTRACTS



## FIBERS A

VAN WYK'S THEORY CONCERNING COMPRESSION OF A FIBROUS MASS. K. Wakayama and T. Hattori (Kyoto Univ.). J. Textile Machy. Soc. Japan 5: 25-30 (June 1959). (4051)

Van Wyk's theory on the compression of a fibrous mass is refuted by the authors on the ground that it ignores the substantial thickness of a fiber. The authors' formula, which shows the theoretical relation between the pressure and volume of a compressed specimen, explains the experimental tendency of the pressure-volume curve. Graphs, 2 refs.

## Natural fibers A1

STUDY OF SOME PROPERTIES OF SPANISH COTTONS IN COMPARISON WITH AMERICAN COTTONS. A. Barella. Investigacion e Informacion Textil 2, No. 1: 1-11 (1959). In Spanish. Through BCIRA 39: 3458 (1959). (4052)

Fiber length, fineness and maturity of Spanish-grown cottons are compared with the same properties of American samples and the results are discussed. The study is to be extended to other parameters, such as strength and elongation at break.

DETECTION AND GEOGRAPHICAL ORIGIN OF IRON-SPOTTED RAW COTTON. G. K. Harrison and P. B. Marsh (U. S. Dept. Agri.). Am. Dyestuff Reptr. 48: 47-50 (Oct. 19, 1959). (4053)

Commercial samples from across the U. S. cotton belt were examined, and it was noted that many of them had brownish spots which did not bleach out in concentrated sodium hypochlorite solution. Such nonbleaching spots invariably contained more iron than the less-discolored parts of the same samples. The origin of these samples is noted. Iron determinations showed a wide range of iron content in bleachable and white cottons but at a lower level than that found in the nonbleaching brown spots. A very simple hypochlorite test is described as a practical qualitative procedure for identification of high-iron spots in commercial raw cotton. Tables. 7 refs.

TRYPTOPHANE CONTENT OF WEATHERED WOOL AND MOHAIR AND MORPHOLOGICALLY DEVIATING WOOL. D. P. Veldsman (South African Wool Textile Research Inst.). Chem. & Ind. No. 27: 878-880 (July 4, 1959). (4054)

RIO GRANDE PRODUCES GOOD CROP OF 1959 COTTON. F. L. Gerdes. Textile World 109: 70 (Nov. 1959). (4055)

USDA fiber and spinning tests on early season cotton show that in comparison with the 5 year average staple length and break factor are up, grades are slightly lower, and length uniformity and maturity are off. Table.

## Manmade fibers A2

REVIEW OF CURRENT STATUS IN KNITWEAR. C. Reichman. Knitted Outerwear Times 27: 3-7, 19-23 (Nov. 9, 1959). (4056)

The various manmade fibers currently used in knitwear are reviewed. FTC generic fiber names are matched with trade names. Tables.

QUARTZ FIBERS IN HIGH TEMPERATURE RESISTANT MATERIALS. W. S. Fiedler, B. A. Cash, and others. Bjorksten Research Labs., Madison, Wis. May 1958. 105 p. Order from Library of Congress, Photoduplication Serv., Washington 25, D. C. Microfilm $5.70, photostat $16.80. PB 139 575. (4057)

Continuous production of vitreous silica fiber by cane drawing and drawing from a bushing were studied down to a fineness of 8 microns. These fibers were coated with metallic aluminum and silver; and hot-pressed laminates were made from the aluminum-coated samples. The tensile strengths of the fibers produced were in the range of 75,000 to 400,000 lb/in.$^2$ with a portion breaking in the 600,000 lb/in.$^2$ range. 89 refs.

GUIDE TO THE NEW FTC LABELING RULES. Am. Fabrics No. 47: 35 (Fall 1959). (4058)

Trade names are paired with the new FTC generic fiber names.

FIBERS TODAY. PART 4. RAYON: DEVELOPMENT, MANUFACTURE, AND USES. J. W. S. Hearle. Textile Mfr. 85: 391-396 (Sept. 1959). (4059)

Photos, photomicrographs, diagrs, tables.

SHRINKAGE OF RHOVYL POLYVINYL CHLORIDE FIBERS. PHYSICAL ASPECTS AND APPLICATIONS. M. Gord. Teintex 24, No. 6: 416-428 (1959). In French. Through BCIRA 39: 3680 (1959). (4060)

JAPAN'S VINYLON KURALON. Silk Rayon Inds. India 1: 17-20 (Oct. 1958). (4061)

Properties and processing are discussed. Table of Kuralon staple properties and table of Kuralon spun yarn properties.

RESISTANCE OF SYNTHETIC CORD YARNS TO REPEATED STRETCHING UNDER NORMAL ATMOSPHERIC CONDITIONS. M. P. Nosov. Textil-Praxis 14, No. 7: 742 (1959). In German. Tekhnol. Tekstil. Prom. No. 3 (10): 45-53 (1959). In Russian. Through BCIRA 39: 3690 (1959). (4062)

Experiments have been made to establish the behavior of Kapron and Terylene filaments during repeated cyclic stress and relaxation with varied stretching amplitude (cold-stretched 1:3.0, 1:4.5, 1:5.0, and 1:5.4) by determining the tensile-strength and elongation characteristics, using the Pulsator apparatus. A table is given, showing the durability of the filaments examined at various cyclic deformations.

PROPERTIES OF FIBERGLAS AT ELEVATED TEMPERATURES. W. H. Otto. Owens-Corning Fiberglas Corp., Newark, Ohio. Sept. 22, 1958. 35 p. Order from Library of Congress, Photoduplication Serv., Washington 25, D.C. Microfilm $3.00, photostat $6.30. PB 139 582. (4063)

Mechanical properties of a lime-alumina-borosilicate glass (E-glass) have been measured at elevated temperatures. Tensile strength and inelastic yield have been measured at temperatures up to 1200° F. The effect of high temperatures on modulus of elasticity have been studied. Stress-rupture curves have been established at temperatures up to 1100° F for load durations up to 20 hr. 2 refs.

## YARN PRODUCTION B

SPINNING OF SYNTHETIC FIBERS ON COTTON SPINNING MACHINES. P. Müller. Reyon Zellwolle Chemiefasern 9, No. 6: 394-402 (1959). In German. Through BCIRA 39: 3527 (1959). (4064)

Directions are given for the processing of nylon and Tergal and their mixtures with cotton on openers, pickers, cards, drawframes, speed frames, and ring spinning machines, together with three practical examples.

EQUATIONS FOR THE ATTENUATION CURVE UNDER STATIONARY CONDITIONS OF DRAFTING. A. G. Sevostyanov. Tekhnol. Tekstil. Prom. No. 2 (9): 52-65 (1959). In Russian. Through BCIRA 39: 3509 (1959). (4065)

General equations for the attenuation curve and equations applicable to certain definite cases are given in the first and second part of the paper, respectively.

PREPARATION FOR SPINNING: CLEANING AND WILLOWING. K. Müller. Spinner u. Weber 77, No. 7: 359-360 (1959). In German. In English, p. 360-361. Through BCIRA 39: 2417 (1959). (4066)

The various operations preceding spinning and the respective machinery are briefly discussed.



EFFECT OF MICROORGANISMS ON THE STRENGTH OF COTTON FIBERS IN PRODUCTS MANUFACTURED FROM THEM. E. A. Sankov. Tekhnol. Tekstil. Prom. No. 2 (9): 37-45 (1959). In Russian. Through BCIRA 39: 3646 (1959). (4067)

The strength of cotton yarn treated with β-naphthol decreases during storage and under unfavorable humidity and temperature conditions. This phenomenon can be explained by the action of (1) the alkaline medium in which β-naphthol is dissolved and (2) microorganisms whose activity is not inhibited by β-naphthol. On treating cotton with β-naphthol, however, a greater amount of fly is removed on the carding machine and, consequently, the breakage frequency of the yarn on the spinning machine decreases. The number of defects in the β-naphthol-treated yarn is also reduced.

EFFECT OF BLENDING COTTON WITH VISCOSE RAYON STAPLE FIBER ON SPINNING. A. V. Teryushkov. Tekhnol. Tekstil. Prom. No. 2 (9): 95-102 (1959). In Russian. Through BCIRA 39: 3528 (1959). (4068)

On adding to cotton (as main component) a component with longer staple length, the mean staple length of the blend and its technological properties are improved. For better spinning, it is necessary to decrease the proportion of the uncontrollable fibers in the drafting zone by increasing the mean staple length of the blend. Addition to cotton of viscose rayon staple fiber in any desired proportion increases the quality of the blend in spite of a certain increase in the fiber length irregularity. A mean staple length of 38-39 mm, at the present distance of 45 mm between the rollers, improves the technological spinning process.

STUDIES OF BLENDING ON THE WORSTED SYSTEM. PART 1. W. J. Onions, R. L. Toshniwal, and P. P. Townend (Leeds Univ.). J. Textile Inst. 50: T505-T520 (Sept. 1959). (4069)

Yarns of black and white fibers have been blended, drawn, and spun on the worsted system by 7 different processing schemes, and examined for irregularity of appearance and blend by several methods. Cox's predictions as to the minimum required number of doublings have been supported; fine yarns are better mixed than coarse; 20/80 blends are more difficult to mix than 50/50. The test methods based on the number or ratio of black and white fibers in a series of sections do not appear very sensitive. Cluster tests involving examination of the aggregation of fibers in the cross-section seem more promising. Tables, 16 refs.

ABRIDGED SPINNING METHOD FOR PROCESSING CHEMICAL FIBERS. G. Schlese. Z. ges. Textil-Ind. 61, No. 11: 417-421 (1959). In German. Through BCIRA 39: 3511 (1959). (4070)

Abridged spinning methods applicable to manmade fibers are reviewed, with special reference to the Halle-Seydel machine, the Perlok tow stapler, the Turbo stapler, the Pacific Converter, the Rieter converter, the Stains direct spinning machine, the Cut-drafil ring-spinning machine, the Toho direct spinner (Japanese), and the Saco-Lowell machine for direct tow-to-yarn spinning. Diagrams are given to illustrate the respective mechanisms.

PROCESSING DACRON TYPE 64 POLYESTER STAPLE ON THE WOOLEN SYSTEM. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Oct. 1959. 6 p. Bull. D-109. Free. (4071)

SLIVER SPINNING: A MODERN METHOD OF SHORT-CUT PROCESSING. N. Hooper (Tweedales & Smalley Ltd). Textile Weekly 59(2): 891-892 (Oct. 23, 1959). (4072)

Features of the Tweedales & Smalley sliver ring spinning frame are described. Photos.

## Opening, picking, fiber preparation B1

MIXING ACTION OF HOPPER-TYPE BLOWROOM MACHINERY. K. Higuchi and Y. Shiba. J. Textile Machy. Soc. Japan 12, No. 6: 51-55 (1959). In Japanese (English summary). Through BCIRA 39: 3496 (1959). (4073)

The mixing of black and white soya beans in a model of a hopper bale breaker has been examined and the following conclusions drawn: (1) the mixing action is made up of shearing, circulating, and a combination of both; (2) when material is fed into the hopper layer by layer, shearing action is most efficient; (3) in the circulating method, blending irregularity decreases as processing time increases; (4) the circulating method is superior to the shearing method in mixing action.

## Carding and combing B2

JAPANESE COMBERS. J. Textile Machy. Soc. Japan 5: 51-60 (June 1959). (4074)

The following Japanese combers are described and illustrated: DZ high speed comber of Howa's pattern no. 3 (Howa Machy. Ltd); OKK-H. S. type comber (Osaka Kiko Co. Ltd); OM-type Nasmith system high-speed comber (Osaka Mach. Mfg. Co. Ltd); Tokai high production comber (Tokai's Loom Works Co. Ltd); and Nasmith type high speed combing machine (Toyoda Automatic Loom Works Ltd). Photos, diagrs, graphs, tables.

CHARACTERISTICS OF FLAT METALLIC WIRE. PART 1. S. Yamawaki and Y. Nagaoka. J. Textile Machy. Soc. Japan 12, No. 6: 28-44 (1959). In Japanese (English summary). Through BCIRA 39: 3497 (1959). (4075)

To study the behavior of fibers on each roller of a carding machine, the frictional resistance of various flat metallic wires set in a wind tunnel, and the growth of the boundary layer and the velocity distribution within the boundary layer, were examined.

METALLIC CARD CLOTHING AND ITS TEETH. K. Mizukaga (Shinko Boki Co. Ltd). J. Textile Machy. Soc. Japan 5: 46-50 (June 1959). (4076)

Advantages and disadvantages of metallic card clothing; shape, appearance, and hardness of teeth; snicks on the side of the wire; and irregularity in teeth height are discussed. Diagrs, graphs, tables.



THEORETICAL SET CONSTANT OF A CARDED WOOL CARD SET. E. Boroczy. Faserforsch. u. Textiltech. 10, No. 6: 283-288 (1959). In German. Through BCIRA 39: 3499 (1959). (4077)

A set constant was derived from the machine-dependent constant of the 3-card set, and it is shown that this constant is identical with the average fiber condensation taking place at the contact line between cylinder and doffer. This explains the so-called equilibrium condition of the card functions.

AIR FLOW ON A CARD WITH METALLIC CARD CLOTHING. PART 1. CONSTRUCTION OF HOT-WIRE ANEMOMETER AND THE AIR FLOW UNDER THE LICKERIN. Y. Niitsu, C. Nozaki, and K. Ando. J. Textile Machy. Soc. Japan 12, No. 6: 45-50 (1959). In Japanese (English summary). Through BCIRA 39: 3498 (1959). (4078)

Air flow measurements were made under the lickerin of a revolving flat card and on a model card. The magnitude and 3-dimensional direction of the air velocity, even in the small space between rows of wire, were also measured, and some analysis of the boundary layer around the lickerin was made.

## Drawing and roving B3

REGULATING SYSTEM FOR THE EQUALIZATION OF SLIVERS. PART 5. NEW MEASURING METHOD FOR INTRODUCING THE REGULATING PROCESS. PART 6. NEW REGULATING METHOD AND FURTHER APPLICABILITY OF THE CONTROL ORGANS. W. Wegener and H. Bechlenberg. Textil-Praxis 14, No. 5: 456-460; No. 6: 552-556 (1959). In German. Through BCIRA 39: 3106 (1959). (4079)

Part 5. The principles of the method and the testing device for dynamic drafting-force measurement as a means for controlling sliver variations are described. Part 6. Construction and mechanism of the regulating system and its use in conjunction with other sliver-controlling processes are discussed. For previous parts see abstr. 2307/59 and 2917/59.

REGULATING SYSTEMS FOR THE EQUALIZATION OF SLIVERS. PART 7. PRACTICAL CONSTRUCTION OF THE REGULATING SYSTEM: THEIR MOST IMPORTANT CHARACTERISTICS AND PROPERTIES. W. Wegener and H. Bechlenberg. Textil-Praxis 14, No. 7: 672-678 (1959). In German. Through BCIRA 39: 3502 (1959). (4080)

The total construction of the installation together with the regulating drawframe and the practical design of the drafting force measuring device and of the mechanical thickness measuring device are described.

TECHNOLOGY OF THE COTTON DRAWFRAME. L. A. Gangli. Textil-Praxis 14, No. 7: 651-656 (1959). In German. Through BCIRA 39: 3504 (1959). (4081)

The viewpoints, which have to be considered for the qualitative evaluation of the drawframe performance, are discussed with special reference to the following items: the guide nip and the fiber guiding surface, forces acting in the drafting zone, and the utilization of the advantages attainable by the fiber guiding surface.

CONTROL OF SLIVER THICKNESS. PART 4. CHARACTERISTICS OF THE FREQUENCY RESPONSE OF THE MOVING AVERAGE TRANSFORMATION. A. Aoki. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 466-469 (1959). In Japanese (English summary). Through BCIRA 39: 3503 (1959). (4082)

The theoretical requirements are examined. An air-micrometer method is used for the moving average transformation.

RIETER FLYER FRAME. W. T. Swatek. Z. ges. Textil-Ind. 61, No. 15: 595-602 (1959). In German. Through BCIRA 39: 3513 (1959). (4083)

Constructional details and mechanism of the single-passage flyer frame, with sliver feed from cans of double-sliver drawframes, are described, and illustrations are given.

INVESTIGATION OF INTERFIBER FRICTION. PART 2. MEASUREMENTS OF WITHDRAWAL FORCE OF SINGLE FIBER FROM COMPRESSED VISCOSE RAYON SLIVER. S. Kinoshita and T. Takizawa. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 455-460 (1959). In Japanese (English summary). Through BCIRA 39: 3508 (1959). (4084)

When the applied pressure P is constant, the withdrawal force F is proportional to the length l of a fiber in the sliver. When P and l are constant, F-P relations vary with time after loading, position of the withdrawn fiber in the sliver, relative humidity, and drawing speed of the fiber.

EFFECT OF DEGREE OF FIRST PARTIAL DRAFT IN SINGLE-APRON DRAWFRAME ON DRAFTING PROCESS AND QUALITY OF HIGH COUNT YARNS. D. M. Kofman. Tekhnol. Tekstil. Prom. No. 2 (9): 66-70 (1959). In Russian. Summary in BCIRA 39: 3505 (1959). (4085)

STUDY OF DRAFTING FORCE. PART 1. INSTRUMENT FOR THE MEASUREMENT OF THE DRAFTING FORCE AND ITS GENERAL PROPERTIES AT SMALL DRAFTS. S. Ishikawa and J. Shimizu. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 461-465 (1959). In Japanese (English summary). Through BCIRA 39: 3507 (1959). (4086)

The torsion due to drafting force is picked up by a magnetic strain-meter. Rovings of rayon staple were examined. The maximum drafting force decreases with increase in the distance between the front and back rollers. The relation between drafting ratio, roller setting, and drafting force is represented on a 3-dimensional diagram and formulated by an equation.

## Spinning, winding, twisting B4

WOOLEN MULE: STUDY OF THE DRAWING-OUT SCROLL. PART 2. J. A. B. Mitchell (Scottish Woolen Tech. Coll.). Textile Mfr. 85: 401-403 (Sept. 1959). (4087)

The use of the drag-change wheels for changing the scroll shaft speed and the effects of different scroll settings under conditions of fixed speed are described. Diagr, graphs, table.



COTTON WASTE SPINNING. G. Schlese. Spinner u. Weber 76, No. 24: 1428-1432 (1958). (4088)

English translation of abstr. 387/59.

DO YOU SPIN ON THE HEAVY SIDE? R. C. Lathem (A. French Textile School). Textile Inds. 123: 125, 127 (Nov. 1959). (4089)

A hypothetical example of the cost of spinning yarns on the heavy side is given.

14 STEPS TO LONGER SPINDLE LIFE. B. F. Davis (SKF Inds.). Textile Inds. 123: 105-106 (Nov. 1959). (4090)

A spindle cleaning procedure and a routine maintenance program are outlined.

WEAR OF SPINDLES FOR SPINNING. Y. Iwata (Nippon Seiko KK). J. Textile Machy. Soc. Japan 5: 31-37 (June 1959). (4091)

The main factors influencing the wear of the footstep section of spindles equipped with roller bearings for spinning have been studied. Spinning wear tests with the use of flat plates and balls (both made of SUJ2 bearing steel) showed that the amount of wear increases in an almost linear relation to the total rotation number, increases slightly with an increase in weight, and increases rapidly with a decrease in the spinning rotation speed. Diagrs, graphs, tables, 11 refs.

SIMPLE AND CONVENIENT METHOD FOR DETERMINING CERTAIN PERFORMANCE DATA ON CONTINUOUS TWISTING AND SPINNING MACHINES. R. Peerts. Rayonne et Fibres Synthet. 15, No. 7: 825-831 (1959). In French. Through BCIRA 39: 3525 (1959). (4092)

A simple and rapid method is described, which makes it possible to determine the optimum working conditions of an installation from a nomogram (e.g. spindle speed, traveler speed, linear velocity, feed roller velocity, etc.).

CAM STUDIES IN CONTINUOUS SPINNING MACHINES. J.-E. Vidiella Bessa. Ingenieria Textil 26, No. 136: 33-41 (Jan./Feb. 1959). In Spanish. Through BCIRA 39: 3514 (1959). (4093)

One of the main problems in continuous spinning machines is the formation of bobbins without causing breakage of the yarn during winding. The author studies in this paper the most suitable profile of the cam, and the characteristics of related mechanisms which transmit to the bobbin rail the movement necessary for the formation of a theoretically perfect bobbin.

EFFICIENCY LIMITS OF RINGS AND TRAVELERS. S. Fürst. Textil-Praxis 14, No. 7: 656-661 (1959). In German. Through BCIRA 39: 3520 (1959). (4094)

The paper deals with efficiency limits of dry spinning rings and travelers in cotton and staple fiber spinning. The effects of heat stress and diameter on the wear of travelers are important. Surface treatments for running in the travelers are specifically mentioned; they are effective but do not permanently reduce wear.

EFFECT OF TENSIONS ON CONTINUOUS SPINNING MACHINE ON ELONGATION CHARACTERISTICS OF COTTON YARNS. Centre de Recherches des Industries Textiles de Rouen. Bull. Inst. Textile France No. 80: 33-54 (Apr. 1959). In French. Through BCIRA 39: 3526 (1959). (4095)

The study described was carried out on various batches of cotton yarn in order to develop a method for determining the elongation periodicity of the yarn produced during winding. The best method was found to be determination of the gradient of the stress-elongation curve by using a dynamometer working at constant elongation. The periodicities were found to be due to the winding tension exerted on the bobbins during continuous spinning; they disappeared when the yarn was wound under adequate tension. The effects of spindle speed, traveler weight, moisture, and yarn relaxation were also studied. A method for determining yarn tension during winding is discussed.

FIXING OF THE TWIST OF SINGLES AND PLIED YARNS BY HUMIDIFYING OR STEAMING. H. Kittel. Melliand Textilber. 40, No. 7: 731-733 (1959). In German. Through BCIRA 39: 3530 (1959). (4096)

Experiments on wool yarns are described which show that the twist is more effectively and durably fixed by steaming than by humidification. Reference is made particularly to the automatic vacuum steaming installation with the patented self-sealing Schmidt door-closing system (German patent 744 442).

GRAPHICAL CALCULATION OF THE DRAFT CORRECTIONS IN SPINNING. C. Pujol. Ingenieria Textil 26, No. 136: 29-31 (Jan./Feb. 1959). In Spanish. Through BCIRA 39: 3524 (1959). (4097)

A nomogram is given, by means of which it is possible to calculate, from the deviations found on the control diagram and expressed in fractions of the count, the draft correction most suitable for the actual working conditions determined by the yarn count and the draft wheel (number of dents).

EFFECT OF TWIST AND THE NUMBER OF DOUBLINGS ON YARN PROPERTIES. A. N. Solovjev. Textil-Praxis 14, No. 7: 661-668 (1959). In German. Through BCIRA 39: 3529 (1959). (4098)

Comparison was made between the yarns produced on the normal twisting machine and on the twist-counter to show the change in the yarn properties in dependence of the twist and the number of the doubled threads. Empirical equations are given to calculate the twisting-in produced by doubling, and diagrams show the tensile strength and elongation of the yarns.

FRICTION PROBLEMS ON RING TWISTING MACHINES. R. Struwe. Spinner u. Weber 77, No. 15: 821-824 (1959). In German. Through BCIRA 39: 3523 (1959). (4099)

Some typical examples of constructional improvements on ring twisting machines are described, and the lubrication problem is discussed.

RIBBON BREAKER DEVICE FOR TYPE SR WINDER. R. Igushi (Shimadzu Seisakusho Co. Ltd). J. Textile Machy. Soc. Japan 5: 62-63 (June 1959). (4100)

The mechanism is described and illustrated with diagrams.

## Yarns B5

EFFECT OF THE PROPERTIES OF SILK FIBER AND OF YARN TWIST ON ITS PHYSICOMECHANICAL PROPERTIES. V. A. Usenko and L. K. Seh. Tekhnol. Tekstil. Prom. No. 2 (9): 28-36 (1959). In Russian. Through BCIRA 39: 3691 (1959). (4101)

Experiments have confirmed the dependence of the physicomechanical properties of silk yarn upon its twist and fiber properties and of the breaking length and yarn irregularity upon yarn count. The results are tabulated.

FIBER ORIENTATION. W. Itani (Kyoto Univ.). J. Textile Machy. Soc. Japan 5: 10-24 (June 1959). (4102)

Methods for measuring and calculating degree of fiber orientation, parallelization, and straightening are discussed, as well as the effects of opening, carding, and drafting on degree of fiber orientation, parallelization, and straightening in laps, slivers, and rovings. Graphs, tables, 12 refs.

TEXTURED YARNS. Am. Fabrics No. 47: 66-75 (Fall 1959). (4103)

Processing and uses of Taslan, Ban-Lon, and Springset are discussed. Yarn and fabric samples. Photos, diagrs.

TEXTURED YARNS: CLASSIFICATION, CHARACTERISTICS, IDENTIFICATION, AND PRODUCTION. P.-A. Koch and W. Morawek. Z. ges. Textil-Ind. 61, No. 11: 421-427 (1959). In German. Through BCIRA 39: 3531 (1959). (4104)

A classification system for textured yarns is proposed, which is based on their method of production, their elasticity, crimping tendency, and voluminosity. Representatives of the different yarn types (highly-elastic filament yarns or monofils, bulked staple yarns, loop yarns, high-twist yarns, and combined yarns) are listed, and their microscopical characteristics are illustrated.

GRADING SPUN AND FILAMENT YARNS. E. Z. Cohen. Textile Inds. 123: 107-110 (Nov. 1959). (4105)

Definitions and possible causes for common spinning defects and visual yarn defects are given. A typical mill grading program is described. Diagr.

GLASS TIRE CORDS. Midland Silicones Ltd. Man-Made Textiles 36: 54 (Oct. 1959). (4106)

The new process is based on silicone "rubber" reinforced with glass cords in which the individual fibers are coated with a film of a cured organo-polysiloxane prior to vulcanization. Details of the process are given.

TEXTILE FACTORS AND TIRE PERFORMANCE. J. W. Hannel (E. I. du Pont de Nemours & Co.). Man-Made Textiles 36: 50-51 (Oct. 1959). (4107)

The effects of varying impact strength, fatigue, and heat resistance are considered. The results of such tests for comparing nylon and rayon tire cords and for assessing the effects of changing tire cord design elements are discussed. Graphs.

PROBLEMS IN THE PRODUCTION OF WOOLEN YARNS. R. T. D. Richards (Wool. Ind. Research Assoc.). J. Textile Inst. 50: P464-P477 (Sept. 1959). (4108)

Some machinery problems in the production of woolen yarns are discussed. Stress is put on the statement of the problem and the need for more plant instrumentation and more knowledge of plant and process characteristics. 29 refs.

## FABRIC PRODUCTION C

TWO INTERESTING MEASURING AND TESTING DEVICES. K. F. Seim. Spinner u. Weber 77, No. 14: 781 (1959). In German. Through BCIRA 39: 3686 (1959). (4109)

A description is given of the KNOM 2940 thread clearers and the R-S controller for measuring and controlling the frictional stress in yarns.

### Warping, slashing, yarn preparation C1

SYNTHETIC FIBERS IN WARP SIZING. M. Witzgall. Melliand Textilber. 40, No. 7: 740-742 (1959). In German. Through BCIRA 39: 3546 (1959). (4110)

Sizing of manmade fiber warps (continuous filament and staple fiber) is discussed, with special reference to the two machine types available in open-width sizing: the cylinder sizing machine and the air-drying sizing machine.

SYSTEMATIC STUDY OF SIZING. PART 9. DESCRIPTION OF SIZE BOILING VISCOSIGRAPH. R. Schutz. Bull. Inst. Textile France No. 81: 87-92 (May 1959). In French. Through BCIRA 39: 3545 (1959). (4111)

The laboratory apparatus described was developed with a view to controlling the cooking conditions in the preparation of starch size in an open tank, its application, and drying of the sized yarn. The apparatus has a capacity of 1-3.5 l. The viscosity of the size is measured on the same principle as that of the Higginbotham consistometer.

EFFECT OF YARN FRICTION IN GROOVE OF THREAD LAYERING DEVICE ON WINDING TENSION. E. D. Elfremov. Tekhnol. Tekstil. Prom. No. 2 (9): 103-109 (1959). In Russian. Through BCIRA 39: 3540 (1959). (4112)

The winding of yarn onto conical bobbins by using as thread-layering means a helical groove on the winding roller is discussed theoretically, with reference to the winding mechanism on the winding machine M-150.

SLASHER SIZES FOR BLENDS OF DACRON AND COTTON. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Nov. 1959. 2 p. Bull. D-110 (replaces Bull. D-65). Free. (4113)

Representative size formulas are included.

PROBLEMS OF YARN CLEARING IN WINDING. B. Ziegler. Textil-Praxis 14, No. 7: 679-684 (1959). In German. Through BCIRA 39: 3541 (1959). (4114)

The following yarn clearers are described: the Perfect Yarn clearer with varying slit widths, Su-per-fect clearers with threader and thread-breaking means, and the Moos-clearer with a conically tapered slit. Tables are given, which show the performance of the respective clearers expressed in efficient removing of knots, neps, weak places, etc.

AN ITALIAN SUPER-COP WEFT WINDING MACHINE. K. Mickan. Spinner u. Weber 77, No. 7: 368-372 (1959). In German. In English, p. 372, 374. Through BCIRA 39: 2442 (1959). (4115)

The mechanism and setting of a solid-cop winding machine constructed by the Italian firm Brügger, Como, are described. The cross-wound bobbins need not be rewound.

SYSTEMATIC STUDY OF SIZING. PART 8. RELATIVE IMPORTANCE OF DIFFERENT TENSIONS TO WHICH WARP YARNS ARE SUBJECTED DURING SIZING. R. Schutz and P. Exbrayat. Bull. Inst. Textile France No. 80: 21-32 (Apr. 1959). In French. Through BCIRA 39: 3544 (1959). (4116)

The effect of tensions to which cotton and viscose rayon staple yarns are subjected when passing through a sizing machine (from beam to sizing bath, from sizing bath to dryer, from the inlet to the outlet of the dryer, and from the dryer to the beamer) is studied, and it is concluded that tensions applied to the wet yarn or those to which the yarn was subjected before sizing or after drying have hardly any effect on the yarn properties if maintained within the usual practical limits and if drying is effected under low tension (below 10 g/thread). Under these conditions, the yarn leaving the dryer has practically the same elongation properties as before sizing.

GILBOS TS-TYPE UNITROM CHEESE WINDING MACHINE FOR THE PRODUCTION OF WARP COPS AND DYEING BOBBINS. Melliand Textilber. 40, No. 7: 739-740 (1959). In German. Through BCIRA 39: 3539 (1959). (4117)

Constructional details are given, with particular reference to the guidance and winding of the thread, the to-and-fro movement, the pressure-relieving motion, the tensioning mechanism, and the servicing of the machine.

TAKEUP MACHINERY. J. V. Keith (Universal Winding Co.). J. Textile Inst. 50: P507-P521 (Sept. 1959). (4118)

For the purpose of the paper, a takeup is a machine that winds at constant yarn speed and operates in conjunction with a yarn-producing or -processing operation. The two basic methods of controlling yarn speed (friction and tension) are discussed, and takeups are identified and described in accordance with these principles. Diagrs.

PRODUCTIVITY IN WINDING: PRACTICAL SYSTEM OF FIXING WAGE RATES. T. W. Walker. Textile Weekly 59(2): 897-902 (Oct. 23, 1959). (4119)

The object of this article is to describe a method of forming a piece-work system which is rapid and easy to apply, so that, no matter what the type of winding process on which the operative is working, the wage will be approximately the same, week by week, when using the same effort. Photo, diagr, graph, tables.

YARN TENSION DURING WINDING AND WARPING OF CONTINUOUS FILAMENT RAYONS AND NYLONS. U. Bhattacharya. Silk Rayon Inds. India 2: 12-14 (Jan. 1959). (4120)

Sources of tension variations, relative merits of various tensioning systems, the importance of uniform and controlled tension, and the optimum desirable tensions during winding and warping of continuous filament yarns are briefly discussed. 6 refs.

EVALUATION OF THREAD CLEARERS. H. Köb. Z. ges. Textil-Ind. 61, No. 11: 430-431 (1959). In German. Through BCIRA 39: 3542 (1959). (4121)

The function of a clearer (elimination of thick places with simultaneous severing of the thread and stripping of fly and seed-coat or straightening of loops without breaking the thread) is discussed, with reference to various electronic and electro-capacitive clearer types and their properties.

## Weaving C2

NEW ADJUSTABLE RING TEMPLE AND ADJUSTABLE STAR TEMPLE. Fuji Mach. Works. J. Textile Machy. Soc. Japan 5: 61-62 (June 1959). (4122)

Features of the type FF 5 adjustable ring temple and type FE 6 adjustable star temple are described and illustrated. Photos, diagrs.

STABILIZATION OF WARP TENSION IN WEAVING. M. Uno and T. Ishida. J. Textile Machy. Soc. Japan 12, No. 6: 59-61 (1959). In Japanese (English summary). Through BCIRA 39: 3551 (1959). (4123)

A new shedding motion, to stabilize warp tension and replace the conventional perpendicular motion, has been made and used successfully. The variation of warp tension was about one-sixth that with a shedding motion of conventional design.

LENZ HBS II LOOM. E. Köster. Melliand Textilber. 40, No. 7: 746-752 (1959). In German. Through BCIRA 39: 3550 (1959). (4124)

Construction, mechanism, and setting of the loom are described, and some of the main features are illustrated.

AUTOMATIC LOOMS. A. J. Gasser. Spinner u. Weber 76: 1451-1455 (Dec. 1958). In German and English. (4125)

Comments on some Ruti automatic high speed looms. Photos, diagrs.

AUTOMATIC LOOM FOR FIGURED WEAVING. H. Makowitzki. Melliand Textilber. 40, No. 7: 753-757 (1959). In German. Through BCIRA 39: 3549 (1959). (4126)

Technical data are given of a new automatic circular-box underpick loom with a 4- to 6-color bobbin-changing mechanism (constructed, in collaboration with the Georg Fischer AG, by the Deutsche Holzveredlung).

IDEAS UNDERLYING WEAVING MACHINE PATENTS. PART 5. R. H. Rossmann. Textil-Praxis 14, No. 7: 698-700 (1959). In German. Through BCIRA 39: 3548 (1959). (4127)

The critical examination of German patents on circular looms is continued.

PICANOL PRESIDENT LOOM. Métiers Automatiques Picanol SA. Textile Merc. 141: 504-506, 535 (Oct. 16, 1959). (4128)

High speed and reliability combined with ample safety margins are features of the loom which is of conventional underpick construction. Its features are described in detail. Photos.

LOOMFIXER AND HIS JOB. PART 12. W. Westbrook. Textile Bull. 85: 75, 78 (Nov. 1959). (4129)

The parallel motion of a loom requires close, precise settings. To obtain the best settings the loomfixer must rely on his knowledge and skill rather than gages and other mechanical methods. Diagrs.

WEAVING PRODUCTION CHART. J. B. Williams. Textile Inds. 123: 117-118 (Nov. 1959). (4130)

The chart gives loom production in thousands of picks per loom hour at 100% efficiency. For convenience the loom speeds are given in tenths of a pick per minute up to one pick per minute and in single picks from 140 to 200 ppm.

PROCESSING OF TREVIRA FILAMENTS IN SILK WEAVING PLANTS. H. Beck. Spinner u. Weber 77, No. 9: 512-515 (1959). In German. Through BCIRA 39: 3553 (1959). (4131)

Directions are given for the use of Trevira polyester filaments in fabrics, with special reference to the preparation of the warp (warping, sizing, heddling), winding of pirns, and weaving. Experiments showed that the loom-finished fabric shrinks by about 3-5%.

ALV AUTOMATIC BOBBIN LOADER. George Fischer Ltd. Textile Mfr. 85: 412-414 (Sept. 1959). (4132)

Weft pirns are transferred from containers straight into the shuttle. Photos.

DEVELOPMENTS IN AUTOMATIC WEAVING. U. Kühn. Melliand Textilber. 40, No. 7: 743-746 (1959). In German. Through BCIRA 39: 3547 (1959). (4133)

Automatic weft winding systems, combining pirn winding and battery loading for automatic looms, are reviewed.

ANALYSIS OF THE POWER REQUIREMENT AND SUPPLY IN COTTON WEAVING MILLS. H. Schaefer. Z. ges. Textil-Ind. 61, No. 13: 515-522 (1959). In German. Through BCIRA 39: 3552 (1959). (4134)

Investigations into the power supply, for the mechanical energy requirements, were made in two weaving sheds. In addition to an analysis of the available statistical data on current consumption, production quantities, and production hours, all productive machine installations were subjected to a thorough examination to determine the specific current consumption of the individual machines, the factors affecting the power and energy requirements, and the efficiency of the drives installed. The combination of statistical analysis and individual measurements makes it possible to distribute the energy input of the whole plant between the individual departments and installations.

## Knitting C3

CABLE STITCH. J. B. Lancashire. Hosiery Trade J. 66: 96-100 (Oct. 1959). (4135)

The various cable stitch effects that can be produced automatically and the methods used on available machines are described and illustrated with photographs.

KINREX V-TYPE FLAT KNITTING MACHINE. Foster Knitting Mach. Co. Ltd. Hosiery Trade J. 66: 109 (Oct. 1959). (4136)

The machine features electromagnetic control of all cam and stitch quality changes via the medium of double or single acting magnets and the use of specially designed sliders. Photos.

FOREIGN KNITTING MACHINERY TRENDS: NEW DESIGN FEATURES EVIDENT IN YARDGOODS EQUIPMENT. Knitted Outerwear Times 27: 49-57 (Nov. 9, 1959). (4137)

New developments in the design and engineering of circular yardgoods machines are discussed and illustrated. Photos.

MODERN TECHNIQUES IN MACHINERY MAINTENANCE. PART 5. GARMENT-LENGTH CIRCULAR MACHINES. J. B. Lancashire and W. O'Brien. Hosiery Times 32: 37, 90 (Oct. 1959). (4138)

POTENTIAL USES, ADVANTAGES OF SYNTHETICS IN KNITTING. W. Meyer. Knitted Outerwear Times 27: 47, 104 (Nov. 9, 1959). (4139)

Text of paper read at recent Milan, Italy conference of International Federation of Knitting Specialists.

PRODUCTION OF CELLULAR STRUCTURES BY TUCKING PRINCIPLE. J. B. Lancashire. Knitted Outerwear Times 27: 5, 25 (Nov. 2, 1959). (4140)

33 TIPS FOR RUNNING ARA-400 CIRCULAR HOSIERY MACHINES. Textile Inds. 123: 145-148, 150 (Nov. 1959). (4141)

Photos.





F/F AND SEAMLESS HOSIERY: ENGLISH-FRENCH-GERMAN GLOSSARY OF TECHNICAL AND COMMERCIAL TERMS. Hosiery Times 32: 59-61, 65-67 (Oct. 1959). (4142)

COMPARISON OF THE STRENGTH, ELONGATION, AND ELASTICITY PROPERTIES OF PERLON STOCKINGS WITH THOSE OF SINGLE THREADS THEREFROM. W. Wegener and G. Schäfers. Reyon Zellwolle Chemiefasern 9, No. 6: 390-393 (1959). In German. Through BCIRA 39: 3699 (1959). (4143)

No statistically significant correlation was found between the strength, elongation, and elastic properties of knitted fabrics and the single threads taken from them.

DEVICE FOR PREVENTING ROUGH, RAVELING SOCK TOPS. W. Shewmake. Textile Inds. 123: 149-150 (Nov. 1959). (4144)

A simple yarn cutting device which severs the lead yarn in the top and provides a 100% smooth, nonrunning, nonraveling, nonpuckered top is described.

DETAILS OF NEW SANTONI AND MATEX SEAMLESS HOSIERY MODELS. I. R. Thornton. Hosiery Trade J. 66: 86-88 (Oct. 1959). (4145)

Features of the Santoni SBV and Mantoni BC10 and RS12 machines are described. Photos.

## Fabrics C4

ANTI-RHEUMATIC FIBERS IN KNITTED FABRICS. K. Mamnicki. Hosiery Trade J. 66: 93-95 (Oct. 1959). (4146)

Preliminary tests on the use of manmade fibers in knit fabrics for the relief of rheumatic pains done at the Institute of Research for Textile Technology in Karl-Marx-Stadt, Eastern Germany, have shown that further research should be concentrated on: 100% Wolycrylon; 50/50 Wolcrylon/cotton; 50/50 PeCe/cotton; 100% PeCe; and 100% cotton. The thermal conductivity, electrical conductivity, electrostatic potential, effects of medicines, and medical effects of the fabrics are reported.

INVESTIGATION INTO THE AGING BEHAVIOR OF ALKALI-CONTAINING GLASS FABRIC IMPREGNATED BY DIFFERENT METHODS. W. Bobeth and U. Renner. Faserforsch. u. Textiltech. 10, No. 6: 263-270 (1959). In German. Through BCIRA 39: 3701 (1959). (4147)

Independent of the glass composition and protective impregnation, all fabrics examined showed on exposure to weathering a decrease in tensile strength, bending strength, and abrasion resistance.

WOVEN FABRIC STRUCTURE: PIQUE AND POPULAR CORDED EFFECTS. D. C. Snowden. Man-Made Textiles 36: 49 (Oct. 1959). (4148)

DESIGN IN WOVEN STRUCTURE. PART 77. FACE AND BACK COUNTS IN DOUBLE CLOTHS. D. C. Snowden. Wool Rev. 32: 35, 37 (Oct. 1959). (4149)

EFFECT OF FIBER PROPERTIES ON THE WEAR VALUE OF CARPETS. W. Albrecht. Melliand Textilber. 40, No. 7: 734-737 (1959). In German. Through BCIRA 39: 3558 (1959). (4150)

The properties of the skinless round Floxan fiber were purposely developed so as to satisfy the demands of the carpet industry. The dyeability, elongation, reduced soilability, and improved cleaning possibility of these fibers render them distinctly superior to highly-crimped skin fibers, the other important fiber properties being equal.

MACHINERY DEVELOPMENTS ON VARIOUS SPINNING SYSTEMS FOR THE PRODUCTION OF CARPET PILE YARNS WITH PARTICULAR REFERENCE TO TUFTED CARPETS. R. G. Cairns, P. H. Oliver, and R. A. Parker (Courtaulds Ltd). J. Textile Inst. 50: P478-P506 (Sept. 1959). (4151)

The fibers available to carpet yarn spinners are discussed and are related to machinery used to produce such yarns on different spinning systems. This is followed by a consideration of machinery available to cotton and flax and jute spinners for the production of pile yarns including that which has been developed specifically for this trade. Finally, the results of trials to determine the effects of using different machinery and various methods of processing on some yarn and carpet properties are given. Diagrs, graphs, tables.

STUDY OF THE EFFLORESCENCE DEFECT ON CELLULOSE ACETATE SATIN. P. Rochas, S. Pierret, and R. Bellaton. Bull. Inst. Textile France No. 80: 79-86 (Apr. 1959). In French. Through BCIRA 39: 3698 (1959). (4152)

This defect is essentially associated with the migration to the surface of the material of inorganic or organic impurities contained in the fabric and is caused by the action of steam during drying after a finishing process. It can be prevented by thorough desizing, scouring and rinsing, by drying and finishing of the fabric on tenters, and by avoiding contact of the wet fabric with a hot surface. Calendering under high pressure reduces or corrects the defect but not permanently; any new finishing process followed by cylinder-drying or simple pressing causes its reappearance.

COLOR EFFECTS. W. Pflug. Textil-Praxis 14, No. 7: 688 (1959). In German. Through BCIRA 39: 3554 (1959). (4153)

Color effects are shown, which can be produced by weaving with several shafts (6-8).

WAVE PROPAGATION OF LONGITUDINAL PULSE IN SOME FABRICS. PART 1. VELOCITY OF WAVE PROPAGATION. M. Suematsu. J. Textile Machy. Soc. Japan 12, No. 6: 56-58 (1959). In Japanese (English summary). Through BCIRA 39: 3695 (1959). (4154)

Phase velocities of different kinds of fabric (viscose rayon, spun rayon, woolen knitted) were measured under different tensions. The wave velocity of the fabrics increased with increasing tension. The wave velocity of the longitudinal pulse wave in a fabric is smaller than that of its constituent threads under the same tension. The wave velocity of sized viscose rayon tape is almost equal to that of its constituent threads.



CARPET AND SMOOTH FLOOR COVERING: MAINTENANCE REQUIRED AND SATISFACTIONS TO USERS. E. Beveridge, G. R. Hawkes, and E. Jebe. J. Home Econ. 51: 780-785 (Nov. 1959). (4155)

Carpet and asphalt tile were studied to compare (1) time of upkeep, (2) noise, (3) aesthetic satisfaction and comfort, (4) changes in attitude resulting from experience with both. Photo, tables, 12 refs.

## FINISHING AND CHEMICAL PROCESSING D

DYEING AND FINISHING OF TUFTED FABRICS. Bull. Inst. Textile France No. 80: 99-109 (Apr. 1959). In French. Through BCIRA 39: 3589 (1959). (4156)

Fixing, dyeing, printing, antisoiling treatments, drying, and transport of tufted articles, in particular carpets, are reviewed. 21 refs.

FINISHING OF KNITTED FABRICS. W. Ernst. Melliand Textilber. 40, No. 7: 793-798 (1959). In German. Through BCIRA 39: 3588 (1959). (4157)

TEXTILE FINISHING LABORATORY. G. Meichsner. Spinner u. Weber 77, No. 14: 778-780 (1959). In German. Through BCIRA 39: 3586 (1959). (4158)

The equipment of a finishing plant laboratory (experimental padder, laboratory steamer, Textometer, tensile strength tester, drying, and condensing oven, sample-hank dyeing apparatus, etc.) is described.

NATURE OF HYDROTROPISM AND ITS SIGNIFICANCE FOR TEXTILE FINISHING. H. Rath and S. Müller. Melliand Textilber. 40, No. 7: 787-792 (1959). In German. Through BCIRA 39: 3592 (1959). (4159)

An attempt is made to give an explanation of the action of hydrotropic substances by examining quantitatively systems of simple model substances with carbonyl group-containing hydrotropic compounds. The hydrotropic action is attributed to the activation of dipolar forces in conjunction with hydrogen-bond formation. The results obtained on the model substances are applied to the system cyclohexanol/cresol/sodium hydroxide, and it is shown how the use of the hydrotropism principle facilitates mercerization of the raw material. The effect of hydrotropic substances on dye solubility is also examined. Measurements have shown that the hydrotropic agents also lead, in addition to an increased degree of dispersion, to a certain coarsening of individual particles, which is associated with the addition of the hydrotropic substances to these particles. Diffusion and dialysis measurements showed that the addition of hydrotropic compounds to a dye solution can cause leveling of the particle size.

1959 TECHNICAL MANUAL OF THE AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLOURISTS. v. 35. P.O. Box 28, Lowell, Mass. 678 p. $6.50. (4160)

AATCC organization, committee reports, test methods, bibliography of 986 references (with subject index), books (1936-1959), dyestuffs and chemical specialties, buyers' guide, membership list.

RECENT DEVELOPMENTS IN DYEING AND FINISHING. B. C. M. Dorset. Textile Mfr. 85: 419-423, 427 (Sept. 1959). (4161)

Developments discussed include: waterproofing Terylene and cellulose acetate with combinations of silicones and organic titanates (BP 814 899); dyeing polyolefin fibers with water emulsions of dyes dissolved in hydrocarbons (BP 814 582); shrinkage of nylon during steaming; fluid bed dyeing of Terylene, nylon, and acetate with disperse dyes (BP 814 526); printing black patterns on cotton (BP 812 143); Stoll-Celanese wrinkle tester; basic dyeing of Acrilan in presence of urea.

## Chemical processes D1

LAUNDRY BLEACHES AND FABRIC SOFTENERS. Consumer Bull. 42: 20-21 (Nov. 1959). (4162)

The use of chlorine, perborate, and monopersulfate bleaches in home laundering is discussed, as well as the proper use of fabric softeners.

BLEACHING OF COTTON FABRICS MADE FROM LOW-GRADE COTTON. N. I. Birger. Tekhnol. Tekstil. Prom. No. 1: 182 (1959). Through BCIRA 39: 3575 (1959). (4163)

A pretreatment, before caustic boiloff and bleaching, involving soaking at room temperature in a solution containing sodium phosphate (5 g/l), sodium bicarbonate (5 g/l), and wetting agent (5 g/l) gave good results. The fabric, after squeezing, is allowed to lie for 4 hr.

OPTICAL BRIGHTENING METHODS. HISTORY, PHYSICAL AND CHEMICAL PRINCIPLES, MEASURING METHODS, APPLICATION RANGE. W. Wincor. Textil-Rundschau 14, No. 6: 316-328 (1959). In German. Through BCIRA 39: 3579 (1959). (4164)

Review. 61 refs.

STUDIES ON THE DEVELOPMENT OF PHYSICAL TECHNIQUES IN CONTINUOUS BLEACHING. J. Dungler. Teintex 24, No. 6: 433-441 (1959). In French. Through BCIRA 39: 3573 (1959). (4165)

A description is given of the new Junior-type continuous machine for desizing, scouring, and bleaching, whose essential feature is the automatic control of both the temperature of the gaseous fluid (superheated steam) and the temperature of the liquid used for treating the fabric (humid temperature). Owing to this improvement, the treatment is effected under the most favorable conditions; the supply of direct steam into the thermal chamber by the automatic control mechanism is sufficient to maintain the humid temperature at the lower limit; the fabric is protected against degradation (no risk of oxy- or hydrocellulose formation), and there is no waste of steam.

GIRLAND PLASTICIZERS. Andrew Eng. & Develop. Co. Ltd. Dyer 122: 541-542 (Oct. 23, 1959). (4166)

Details of the hosiery preboarding/postboarding cycle temperature control equipment are described and illustrated. Photo, diagrs.



DURABLE CREASES PRODUCED IN COTTON AND RESIN-FINISHED COTTON FABRICS BY AN ALKALI PROCESS. W. A. Reeves and C. H. Mack (So. Reg. Research Lab.). Am. Dyestuff Reptr. 48: 43-46, 50 (Oct. 19, 1959). (4167)

A process is described for imparting durable creases to cotton fabrics. The process utilizes mercerization strength alkali solutions and is applicable to most types of resin-treated and crosslinked fabrics, as well as to unfinished cotton fabrics. Creases are produced by moistening the area to be creased with alkali solution, then ironing-in the crease with a hot iron. Creases produced by the process remain sharp after many launderings. Photos, tables, 10 refs.

OIL AND GREASE STAINS. Nat. Inst. of Drycleaning, Silver Spring, Md. Aug. 1959. 4 p. Bull. T-383. (4168)

Describes the behavior of different types of oil and grease stains commonly encountered by drycleaners.

DRYCLEANING OF COTTONS. PARTS 1-3. Nat. Inst. of Drycleaning. Silver Spring, Md. 1959. 12 p. Bull. T-380, T-381, T-382. (4169)

The effects of the drycleaning bath itself, the finish of the cotton, condition of the drycleaning bath, the effect of classification, discolorations caused by prespotting, and the effect of moisture on the discoloration of cottons in drycleaning.

EFFECT OF WOOL POROSITY ON MECHANISM OF SOLVENT SCOURING. H Sanuki (Tokyo Univ.). J. Textile Machy. Soc. Japan 5: 38-45 (June 1959). (4170)

The degree of porosity (degree of opening) of a wool assembly has a great deal to do with the mechanism of practical processing. The author concludes in this study: (1) In the steeping system for the treatment of a wool assembly, the efficiency of treatment, particularly short-time treatment, varies with the degree of wool porosity. (2) In the flowing-out system, the efficiency of extraction is fairly high even when the degree of wool porosity is small. Graphs, tables, 4 refs.

LAUNDERING WHITE COTTON FABRICS IN HARD WATER TO MAINTAIN MAXIMUM WHITENESS. L. O. Lund. J. Home Econ. 51: 776-779 (Nov. 1959). (4171)

This investigation was undertaken to determine (1) how to retain maximum whiteness of cotton fabrics when laundering in hard water, and (2) if any of the methods used to obtain maximum whiteness cause a decrease in residual strength or produce other undesirable effects. Greatest whiteness retention was obtained with soap and water softener. Greater residual strength seemed to result when a synthetic detergent was used. The presence of iron in the water caused yellowing. The use of bleaches did not show the fabric deterioration often attributed to bleaching. Tables, 4 refs.

DESIZING, SCOURING, AND BLEACHING IMPROVES COTTON FOR OUTDOOR USE. W. A. Reeves, H. M. Robinson, R. J. Brysson, and W. N. Berard (So. Reg. Research Lab.). Canvas Products Rev. 35: 32-33, 48 (Nov. 1959). (4172)

The value of wet finishing operations in combating mildew. Photos, 2 refs.

TREATMENT BEFORE DYEING OF COTTON/SPUN RAYON BLENDS. E. Pieper. Rayonne et Fibres Synthet. 15, No. 7: 771-781 (1959). In French. Through BCIRA 39: 3570 (1959). (4173)

Gassing, desizing, kier boiling, bleaching, and mercerizing of cotton/spun-rayon fabrics are described, and some theoretical indications are given as to cellulose degradation.

SOLUTIONS OF SOME EQUIPMENT AND MACHINE PROBLEMS IN CHEMICAL FIBER FINISHING. G. Dierkes. Z. ges. Textil-Ind. 61, No. 11: 442-448; No. 12: 491-493; No. 13: 541-545 (1959). In German. Through BCIRA 39: 3641 (1959). (4174)

A differentiation is made between an apparatus in which the treatment liquor is circulated through the stationary material by means of a pump or a propeller and a machine in which the material is passed through the stationary liquor, and modern constructions of both types for treating regenerated cellulose and synthetic fibers are reviewed.

ACTION OF LIGHT ON THE CELLULOSE OF COTTON FIBERS. F. I. Sadov and R. I. Vylcheva. Tekhnol. Tekstil. Prom. No. 1: 132-136 (1959). Through BCIRA 39: 3577 (1959). (4175)

Cotton boiled in 1% alkali solution and bleached in chlorite, hypochlorite, and peroxide was examined. Primary and secondary hydroxyl groups are oxidized not only to aldehyde and carboxyl but also to keto groups. Cotton bleached with hypochlorite is less stable than cotton boiled in alkali and bleached with chlorite.

STUDIES ON THE ADSORPTION OF THE PRIMARY CONDENSATION PRODUCTS OF MELAMINE WITH FORMALDEHYDE BY CELLULOSE. K. Koeda, H. Ono, and H. Tonami. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 470-475 (1959). In Japanese (English summary). Through BCIRA 39: 3635 (1959). (4176)

When the molar ratio of formaldehyde (F) against melamine (M) was varied the quantities adsorbed increased in the order M2F > M3F > M4F, but, with constant molar ratio, MF of higher clouding point was adsorbed much more than MF of lower clouding point. It is assumed, therefore, that the monomer of MF is not adsorbed. Especially in the case of M2F, Langmuir's adsorption equation can be applied (adsorption energy 11.5 kcal per mole of dimer of M2F). Primary condensation products of urea with formaldehyde, methylated methylol melamine, and methylol ethylene urea were little adsorbed by cellulose.

USE OF REACTIVE RESINS FOR WASH-AND-WEAR FINISHING OF COTTON FABRICS. S. Jost. Textil-Rundschau 14, No. 7: 367-375 (1959). In German. Through BCIRA 39: 3633 (1959). (4177)

In this review, reference is made to 12 publications dealing with the chlorine retention of resin treated cotton, the development of amine odor, the chemical and physical effects of finishes based on methylol derivatives of ethylene urea, the effect of a new triazine formaldehyde cross-linking agent (Aerotex 23 special), the use of epoxy resins, creaseproofing of cotton with the APO resin (a tris(1-azidiridinyl) phosphinoxide), and the development of acetal reactants.



FINISHING TRIACETATE FABRICS. Man-Made Textiles 36: 57-58 (Oct. 1959). (4178)

The principles involved in the application of resins to Tricel blends and recommended process conditions for pleating are summarized.

EFFECT OF LIGHT ON THE CELLULOSE OF COTTON. PART 1. CHEMICAL MODIFICATION OF THE MACROMOLECULE OF CELLULOSE CAUSED BY THE ACTION OF ARTIFICIAL LIGHT. F. I. Sadov and R. I. Vylcheva. Tekhnol. Tekstil. Prom. No. 6: 66-75 (1958). Through BCIRA 39: 3576 (1959). (4179)

Boiled-off cotton and cotton bleached with hypochlorite, chlorite, and peroxide were examined. Artificial light causes oxidation of primary and secondary hydroxyl groups and formation of not only aldehyde and carboxyl groups but also keto groups. Hypochlorite-bleached material was degraded most.

MERCERIZATION INTENSITY DIFFERENCES ON COTTON FABRICS. R. Loss. SVF Fachorgan Textilveredlung 14, No. 5: 290-292 (1959). In German. Through BCIRA 39: 3630 (1959). (4180)

Experiments showed that the majority of stains on piece-dyed cotton fabrics can be removed by stripping, after-mercerization and redyeing. This indicates that the stains are directly associated with mercerization (alkali concentration, period of treatment). Since the alkali treatment is known to decrease the crystallinity of cotton, a method was developed for determining this value by hydrolysis of the samples in strong hydrochloric acid (5N) and taking the hydrolysis residue (in % of the sample weight) as a measure of this value. Stained and stain-free zones in dyed cotton fabrics were found to show differences in hydrolysis residues amounting to 3-5%.

MEAN DEGREE OF POLYMERIZATION OF CELLULOSE HYDRATE FIBERS AFTER FINISHING. W. Graeser and E. Liesebach. Z. ges. Textil-Ind. 61, No. 12: 477-483 (1959). In German. Through BCIRA 39: 3636 (1959). (4181)

Resin stripping methods, known from the literature, are examined for their suitability as regards the determination of DP-values, and it is shown that the measurement of the DP-values can be effected by the nitrate method if the effect of the nitrating acid itself is utilized for dissolving the resins. The deposition of simple urea-formaldehyde resins, which contain mainly dimethylol-urea in the precondensate, leads to the decomposition of cellulose fibers, depending upon the strength of the acid liberated from the catalyst during condensation. The acid causes the methylol groups to split off formaldehyde which effects direct formalization of the fibers under the action of the nonbuffered catalyst. The fiber-tendering action of formaldehyde is proved by the fact that the damage in the fiber center occurs during condensation even if, as a result of drying conditions, the resin has migrated into the skin zones.

## Dyeing and printing D2

EFFECT OF INORGANIC IONS ON COTTON DYEING. M. S. Chun. Master's thesis, Georgia Inst. of Technol., Atlanta, Ga. 1959. 84 p. (4182)

SOME OBSERVATIONS ON DYEING BY THE CUPROUS-ION METHOD. D. R. Graham and K. W. Statham (Abbey Meadow Mills). J. Soc. Dyers Colourists 75: 452-455 (Sept. 1959). (4183)

The addition of complexing agents, such as chloride ions, has been shown to produce a more even uptake of cuprous ions by Orlon. The shrinkage of acrylic fibers during dyeing by the cuprous-ion method appears to depend on the amount of copper adsorbed. It may be due to disorientation of the molecular structure of the fiber. Graph, tables, 10 refs.

DYEING WITH DIRECT DYES: THE EFFECT OF VARIOUS SALTS. AATCC Southeastern Sect. Am. Dyestuff Reptr. 48: 51-56 (Oct. 19, 1959). (4184)

This paper discusses the effect of salts other than sodium chloride and sodium sulfate on the dyeing behavior of direct dyes when applied to cotton cloth at a pH of 3. The salts (chlorides of magnesium, calcium, barium, lead, aluminum, and tin) were added to each dyebath at equivalent ionic strengths to facilitate comparisons. Reflectance data, obtained from the dyed samples with the aid of a spectrophotometer, were used to evaluate the effect of the salts; comparisons with dyeings made in the presence of sodium chloride were also made. Diagrs, graphs, tables, 10 refs.

DYEING OF SYNTHETIC FIBERS. PART 2. DYEING SYNTHETIC POLYAMIDE FIBERS WITH SUSPENSIONS OF ACID AND CHROME DYES. V. F. Androsov and A. A. Kharkharov. Tekhnol. Tekstil. Prom. No. 6: 62-65 (1958). Through BCIRA 39: 3613 (1959). (4185)

Acid and chrome dyes are converted into water-insoluble salts of calcium, magnesium, or barium and used for suspension dyeing of nylon.

DYEING OF SYNTHETIC FIBERS. PART 3. INFLUENCE OF TEMPERATURE OF DRYING ON THE PROPERTIES OF NITRON ACRYLIC FIBER. A. A. Kharkharov and G. A. Arestova. Tekhnol. Tekstil. Prom. No. 1: 137-140 (1959). Through BCIRA 39: 3621 (1959). (4186)

The critical temperature of drying is 70° C. Above this, the selectivity of dye falls off sharply. In industrial conditions, in the absence of automatic control, it should be 50-60° C, and not above 65° C with automatic control. The character of the modification is discussed.

DYEING OF SYNTHETIC FIBERS. PART 4. DYEING OF SYNTHETIC POLYAMIDE FIBERS WITH VAT DYES. V. F. Androsov and A. A. Kharkharov. Tekhnol. Tekstil. Prom. No. 2 (9): 110-116 (1959). In Russian. Through BCIRA 39: 3614 (1959). (4187)

It was found that leuco esters of vat dyes dye Capron fibers according to a complex mechanism in which the chemical interaction between dye and fiber is superposed by the absorption of the vat dyes due to intermolecular forces. Dyeing conditions and development of certain dyes (e.g. bright-red Indigosol) on Capron fibers are specified and fastness of the dyeings is determined. The method of determining the dyeing intensity, after development, by comparing the spectrophotometric reflexion spectra of the dyed samples was found satisfactory.



DEVELOPMENT IN THE FIELD OF FAST DYEING OF POLYACRYLONITRILE FIBERS, ESPECIALLY DRALON. W. Hees. Z. ges. Textil-Ind. 61, No. 11: 455-458 (1959). In German. Through BCIRA 39: 3619 (1959). (4188)

Directions are given for dyeing acrylic fibers alone and in blends with cellulose and wool with Astrazon and Astra dyes.

NEW DEVELOPMENTS IN CIBACRON DYESTUFFS. K. J. Bardt (Ciba Co. Ltd). Can. Textile J. 76: 33-37 (Oct. 30, 1959). (4189)

Recent innovations in padding, drying, fixing, soaping, and printing with Cibacron dyes on cellulose fibers and wool dyeing with Cibacron dyes are discussed.

SURVEY OF THE CARRIERS USED IN DYEING POLYESTER FIBERS WITH DISPERSE DYES. E. P. Frieser. Reyon Zellwolle Chemiefasern 9, No. 6: 378-383 (1959). In German. Through BCIRA 39: 3616 (1959). (4190)

The carriers available at present are listed (trade names, chemical formulas, producers, amounts used, advantages, and disadvantages), with a special enumeration of those marketed in Germany.

DYEING OF SYNTHETIC FIBERS IN RECENT PATENT LITERATURE. Reyon Zellwolle Chemiefasern 9, No. 6: 368-372 (1959). In German. Through BCIRA 39: 3612 (1959). (4191)

This review is based on 51 patents of which 28 refer to the dyeing of polyacrylonitrile fibers, 12 to polyester fibers, 7 to polyamide fibers, and the rest deal generally with the dyeing of manmade fibers.

DYEING OF SYNTHETICS. F. Fourné. Reyon Zellwolle Chemiefasern 9, No. 6: 363-368 (1959). In German. Through BCIRA 39: 3611 (1959). (4192)

The dyeing of polyamide, polyacrylonitrile, polyvinyl chloride, polyvinyl alcohol fibers, and fiber blends are reviewed, and tables are given listing various dye classes and their applicability. 89 refs.

DYEING OF SYNTHETIC FIBERS WITH VAT DYES. PART 3. J. Müller. Melliand Textilber. 40, No. 7: 773-782 (1959). In German. Through BCIRA 39: 3617 (1959). (4193)

Methods for dyeing polyester and polyester/cellulose fabrics with vat dyes and for dyeing polyester fiber yarns with vat acid are reviewed. Special reference is made to the use of Polyestrene dyes, 9 shades of which are at present available.

DIRECT DYEING OF CELLULOSE. PART 7. RELATION BETWEEN THE DYEING PROPERTIES AND THE CONJUGATED SYSTEM OF DOUBLE BOND. K. Nishida. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 499-501 (1959). In Japanese (English summary). Through BCIRA 39: 3606 (1959). (4194)

The solubilities in water, the coagulation values, and the absorption isotherms of Diamine Black RO and Direct Violet O were determined, and the greater affinity of Direct Violet O for cotton is discussed.

OPTICAL INVESTIGATIONS INTO THE PHYSICAL STATE OF DYES ADSORBED AT SOLID SURFACES. PART 2. D. S. E. Campbell, D. Cathcart, C. H. Giles, and S. M. K. Rahman (Royal Coll. of Sci. & Technol., Glasgow). Trans. Faraday Soc. 55: 1631-1643 (Sept. 1959). (4195)

Spectrophotometric tests were made to determine whether dyes adsorbed in solid films of regenerated cellulose and of gelatin, used as models of cellulosic and protein fibers respectively, are monodisperse or heterodisperse. Determinations of absorption spectra of Benzopurpurin 4B, a direct cotton dye, in a variety of solvents and adsorbed in solid films are described. Graphs, tables, 18 refs.

VAN DER WAALS AND DISPERSION FORCES. W. L. Lead (Nottingham & District Tech. Coll.). (Letter to the editor). J. Soc. Dyers Colourists 75: 460-461 (Sept. 1959). (4196)

RELATION BETWEEN DICHROISM AND ISOTHERM OF CONGO RED ADSORBED IN VINYLON. K. Fujino, F. Fujimoto, and K. Fujita. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 490-493 (1959). In Japanese (English summary). Through BCIRA 39: 3622 (1959). (4197)

A theoretical relationship is derived; it agrees well with the experimental data for Vinylon (PVA), but not so well for heat-treated PVA fiber or regenerated cellulose fibers (viscose, Bemberg).

THERMODYNAMIC INVESTIGATIONS OF CELLULOSE DYEING WITH VAT DYES. P. V. Moryganov and M. I. Artym. Tekhnol. Tekstil. Prom. No. 2 (9): 125-133 (1959). In Russian. Through BCIRA 39: 3609 (1959). (4198)

Surface-active agents and organic solvents were found to considerably affect the affinity of leuco compounds of vat dyes for cellulose, the affinity decreasing with increasing concentration of these compounds. This may be of great practical importance for obtaining level dyeings on cellulosic fibers dyed with reduced vat dyes. In the absence of surface-active agents and organic solvents, the affinity of the vat dyes for the cellulosic fiber (cuprammonium rayon) is comparable to that of direct dyes.

ELECTROLYTIC TANK FOR THE INVESTIGATION OF FLUID FLOW PATTERNS IN YARN PACKAGES. M. J. Denton (Shirley Inst.). J. Textile Inst. 50: T521-T527 (Sept. 1959). (4199)

The types of packages used in the wet processing of yarn are briefly considered, and the use of the well-known electrolytic tank analog to obtain the flow pattern inside two typical packages is described. The method can obviously be applied to wound packages of any shape, and the electrical analog constructed for complicated shapes, where a mathematical solution would become very difficult and tedious. Diagrs, graphs, 5 refs.

COLOR MATCHING VIA PIGMENT IDENTIFICATION. M. Saltzman (Allied Chem. Corp.). Dyestuffs 43: 57-65 (Sept. 1959). (4200)

Graphs, 7 refs.





PLUSFLO WOOL AND ACRYLIC HANK DYEING. Freeman, Taylor Machines Ltd. Dyer 122: 543-545 (Oct. 23, 1959). (4201)

The advantages, design, and performance of the Plusflo hank dyeing machine are described. Photo.

STATE OF CONGO RED MOLECULES ADSORBED IN PVA FILM. PART 3. VISCOSITY OF PVA AQUEOUS SOLUTION CONTAINING CONGO RED. K. Fujino and F. Fujimoto. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 483-484 (1959). In Japanese (English summary). Through BCIRA 39: 3623 (1959). (4202)

The viscosity of an aqueous solution of polyvinyl alcohol increases on addition of Congo Red.

LABORATORY METHODS FOR THE PREPARATION OF COMPOSITIONS FOR DISCONTINUOUS DYEING WITH PROCION DYES. I. Seltzer and C. D. Weston. Tinctoria 56, No. 6: 245-246 (1959). In Italian. Through BCIRA 39: 3599 (1959). (4203)

Two methods and the respective dyeing apparatus are described. One is carried out using a dye-liquor ratio of 4:1 to 20:1, whereas the other is effected at a liquor ratio 10:1 to 40:1; in both, the cold-dyeing Procion dyes give dyeings with excellent leveling properties.

PIGMENT-AND-RESIN EMULSION FOR PRINTING. Man-Made Textiles 36: 60, 62 (Oct. 1959). (4204)

The developments leading to the oil-in-water color concentrate using as a resinous binder a pentaerythritol polyester alkyd resin and an amino aldehyde resin (BP 806 571, Geigy) are traced.

THE PRINTING OF TEXTILE FABRICS BY BLOCK AND SCREEN. 5th ed. Imperial Chemical Industries Ltd. Dyestuffs Div. Manchester. 1959. 159 p. (4205)

Revised and extended edition of a publication that has been used in academic courses as well as industrial training.

PRINTING WITH METALLIC POWDERS. M. Mackay. Textile Mfr. 85: 405 (Sept. 1959). (4206)

Precautions to be taken in fabric preparation, binder selection, particle size of the metallic powders, roller setting, drying, and soaping for achieving good results are discussed.

PROBLEMS IN PRINTING SYNTHETIC FIBERS. W. Sonnenschein. Textil-Praxis 14, No. 7: 708-714 (1959). In German. Through BCIRA 39: 3628 (1959). (4207)

Printing of polyamide, polyacrylonitrile, and polyester fibers with acid, direct, disperse, metal complex, vat, Cellitone and pigment dyes is discussed. Possibilities of discharge printing and difficulties encountered in the case of polyester fabrics are pointed out.

FADING OF DYES IN FLUORESCENT LIGHT. H. Zukriegel. Melliand Textilber. 40, No. 7: 772-773 (1959). In German. Through BCIRA 39: 3703 (1959). (4208)

Experiments showed that fluorescent lamps with a small radiation energy in the range of 4,200 to 460 Å cause little or no fading of dyed textiles.

## Mechanical processes D3

CONTROL OF THE RAISING PROCESS. Tomlinsons Ltd. Man-Made Textiles 36: 63-64 (Sept. 1959). (4209)

The Shirley raising action indicator makes it possible to read directly the work done by the card wires on the cloth during raising. Two typical card-rollers, one pile and one counterpile, are fitted with dynamometers in which the drive is transmitted from the driving pulley to the roller shaft through a strong spring. The small deflection of each spring is accurately measured electrically and displayed on a meter. It is possible not only to locate the point of practical zero, but also to measure precisely the torque applied to the rollers, so that at any later date the cloth can be subjected to the same conditions. Photos.

ELECTRO-FINISHER UPGRADES WOOLENS. J. H. Kennedy, Jr. (Lowell Technological Inst.). Textile Inds. 123: 131-137 (Nov. 1959). (4210)

Details of the construction and operation of the Electro-Finisher for wool fabrics are described. The "electrifying" action gives a soft, lustrous, fur-like surface. Photos, diagr.

## Drying, setting, conditioning D4

TENTER DRYING. T. A. Uthwatt and J. S. Woollatt (Mather & Platt Ltd). J. Soc. Dyers Colourists 75: 445-451 (Sept. 1959). (4211)

Tenter drying by forced convection is discussed. The physical laws and the limitations which they impose are detailed. The factors which affect evaporative capacity are divided into those beyond and those within the designers' and operators' control. The methods used to develop a new design of tenter are described. Photo, diagrs, graphs, 5 refs.

PRESSURE DRYER IN YARN DYEING PLANTS. W. Christ. Spinner u. Weber 77, No. 7: 389-390 (1959). In German. In English, p. 390, 392. Through BCIRA 39: 2469 (1959). (4212)

The mechanism of the pressure dryer (developed by B. Thies, Coesfeld) is described, data are given for its power, heat and energy consumption, and applicability, and its productivity is compared with that of an open-type rapid dryer.

FORCED CONVECTION CYLINDER DRYING. Greenbank Eng. Co. Ltd. Dyer 122: 539, 541 (Oct. 23, 1959). (4213)

The Cylvec dryer gives even distribution of hot air at a calculated velocity and can be fitted to either vertical or horizontal stacks of cylinders. Results of evaporation and steam consumption tests are noted. Photo.

PRINCIPLES AND OPERATION OF THE HYDRO-EXTRACTOR. Can. Textile J. 76: 44 (Oct. 30, 1959). (4214)

BETTER AIR DRYING AND CURING. B. R. Andrews, Jr. (Midland-Ross Corp.). Textile Inds. 123: 99-101 (Nov. 1959). (4215)

Requirements for the efficient operation of air dryers are discussed. Graphs.

# TESTING AND MEASUREMENT E

## Fibers E1

STRENGTH EVALUATION OF COTTON BY HAND. W. F. Du Bois. Tex 18, No. 7: 807-810 (1959). In Dutch. Through BCIRA 39: 3670 (1959). (4216)

A correlation has been established between the strength determination by hand (first pull) and values obtained for the upper half mean, mean, and Pressley index for different varieties of cotton. Within a single variety, the difference between various fiber properties is too slight to indicate a distinct relationship between the values. The strength evaluation by hand is influenced by the external appearance of the cotton.

DYEING BEHAVIOR AND MATURITY OF COTTON. DIFFERENTIAL DYEING. R. Crespo. Investigacion e Informacion Textil 2, No. 1: 19-25 (1959). In Spanish. Through BCIRA 39: 3668 (1959). (4217)

The effect of maturity on the dyeing properties of cotton is discussed, with particular reference to the different behavior of mature and immature fibers in so-called differential dyeing.

MICROSCOPIC AND CHEMICAL EXAMINATION OF PERLON AND NYLON DYED BLACK BY MEANS OF LOGWOOD. M. Stratmann. Z. ges. Textil-Ind. 61, No. 11: 427-430 (1959). In German. Through BCIRA 39: 3700 (1959). (4218)

Logwood-dyed black nylon and Perlon was found to show a behavior different from usual during microscopic and qualitative chemical analysis, which renders identification of these fibers difficult. The following conditions were, therefore, adopted for identification purposes; solubility in 6 N hydrochloric acid within 5 min; precipitate formation on diluting the solution with water (Perlon and nylon); embedding in lactophenol, whereby no change is observed under the microscope in the case of polyamide 6,6 (nylon), whereas in polyamide 6 (Perlon) the fiber ends show a cup-shaped protrusion and later the whole fiber appears swollen.

REACTIVE DYE STAINING FOR DIFFERENTIATION OF SKIN AND CORE OF VISCOSE RAYON FIBERS. K. Kato. J. Soc. Textile Cellulose Inds. Japan 15, No. 6: 494-498 (1959). In Japanese (English summary). Through BCIRA 39: 3672 (1959). (4219)

Procion Black HGS, with urea and soda ash, gives selective staining of the skin area of viscose. Wool shows bilateral staining and Vinylon a skin-core differentiation.

INTRODUCTION TO THE STUDY OF THE FINENESS AND MATURITY OF COTTONS. A. Barella. Investigacion e Informacion Textil 2, No. 1: 29-53 (1959). In Spanish. Through BCIRA 39: 3666 (1959). (4220)

In this review, the author discusses: fiber fineness and its measurement by means of the Hertel Arealometer, the Sheffield Micronaire, the Anderson air-flow apparatus, and the Port-Ar Spinlab, the fiber maturity and methods for its determination, and the relationships existing between fineness and maturity. 42 refs.

CORE TESTING WOOL UP-TO-DATE. H. R. Keller (U.S. Dept. Agri.). Textile Inds. 123: 102-104 (Nov. 1959). (4221)

The development of small core tubes and the pressure subsampling machine are described. Photos.

CHEMICAL TESTING OF WOOL BY FRACTIONATION AND VISCOSITY MEASUREMENT. A. Engeler and W. Schefer. Textil-Rundschau 14, No. 6: 307-315; No. 7: 375-385 (1959). In German. Through BCIRA 39: 3681 (1959). (4222)

IDENTIFICATION OF TEXTILE FIBERS. Y. V. Vasil'ev. Tekhnol. Tekstil. Prom. No. 2 (9): 9-18 (1959). In Russian. Through BCIRA 39: 3659 (1959). (4223)

The method developed for a systematic analysis (detection and identification) of fibers is based on the difference in the chemical composition and physico-chemical properties of the fibers and consists of a series of simple reactions, tests, and determinations. In addition to individual representatives of cellulosic, cellulose hydrate and regenerated protein fibers, all synthetic fibers can be rapidly distinguished and identified.

IDENTIFICATION AND DIFFERENTIATION OF VARIOUS CHEMICAL FIBER TYPES. P.-A. Koch. Z. ges. Textil-Ind. 61, No. 11: 410-416 (1959). In German. Through BCIRA 39: 3662 (1959). (4224)

Tables are given for the microscopic-chemical identification of manmade fibers, type-reaction of various fibers, cross-section characteristics, chemical reactions, and solubility in various solvents (with a list of chemicals required), and dyeability with dye mixtures. A bibliography referring especially to publications on manmade fibers is appended.

TEXTILES: QUANTITATIVE CHEMICAL FIBER ANALYSES. POTASSIUM HYDROXIDE METHOD. Swiss Standards Assoc. Textil-Rundschau 14, No. 6: 336-337 (1959). In German. Through BCIRA 39: 3660 (1959). (4225)

The Swiss specification SNV 95 5 45 describes the method for the quantitative separation of binary fiber mixtures, whereby one component is either wool (or another animal hair), natural silk, alginate or polyvinyl alcohol fiber, and the other a vegetable fiber, regenerated cellulose, polyester, polyamide, polyurethane, polyethylene, polyvinyl chloride, polyvinylidene chloride, polyvinyl acetal, polyacrylonitrile or a mixed polymerizate (Dynel, Acrilan) fiber. The mixtures can be tested in the form of loose material, yarn, woven or knitted fabric or felt.





TEXTILES: QUANTITATIVE CHEMICAL FIBER ANALYSES. FORMIC ACID/ZINC CHLORIDE METHOD. Swiss Standards Assoc. Textil-Rundschau 14, No. 7: 386-387 (1959). In German. Through BCIRA 39: 3661 (1959). (4226)

The Swiss standard specification SNV 95 5 50 has adopted the method of von Schlütter and Marschall for the quantitative separation of binary fiber mixtures (loose material, yarn, and woven fabrics, felt), whereby one component is completely soluble in the formic acid/zinc chloride reagent and the other component is obtained as insoluble residue, whose dry weight is calculated as a percentage of the dry weight of the fiber blend (applying an experimentally-determined correction factor for any loss of substance). The soluble component (%) is determined by difference from 100.

## Yarns E2

USE OF PERCENTAGE MEAN RANGE (P.M.R.) AS A MEASURE OF SPINNING IRREGULARITY. A. Barella and L. Viertel. Rev. Textile 58, No. 1: 22-28 (1959). In French. Through BCIRA 39: 3117 (1959). (4227)

COGEST SLUBBING AND ROVING TESTER. S. Rehlein. Spinner u. Weber 77, No. 14: 766-767 (1959). In German. Through BCIRA 39: 3510 (1959). (4228)

The principle, adjustment, and use of the apparatus for testing the diameter of card slivers, slubbings, and drawframe slivers are described, and directions are given for the interpretation of a diagram recorded by the roving tester. Reference is also made to the recently developed apparatus for testing wool slubbings.

THEORETICAL ANALYSIS ON THE SPECTRAL DENSITY OF RANDOM SLIVERS. K. Fujino and S. Kawabata (Kyoto Univ.). J. Textile Machy. Soc. Japan 5: 1-9 (June 1959). (4229)

This article describes a theoretical analysis of random slivers. The authors have formulated a function which expresses the thickness of slivers and have calculated its spectral density by Fourier transformation. As a special case in the general formula, the so-called "random slivers" are studied and the characteristics of their irregularity explained. This theory can be used with problems attending automatic control of sliver levelness, the technique of the measurement of sliver or yarn irregularity, drafting, and the theory of blending. Graphs, table, 3 refs.

EFFECT OF FIXING CLAMPS ON BREAKING ELONGATION VALUES. F. Maag. Rayonne et Fibres Synthet. 15, No. 7: 815-817 (1959). In French. Through BCIRA 39: 3689 (1959). (4230)

Experiments are described which were carried out on Perlon, polyester, and rayon yarns with a view to ascertaining the extent to which the elongation values are affected during tensile strength testing. It was found that the elongation values, especially in the case of high-tenacity synthetic fibers, depend to a great extent upon the manner in which the sample is fixed. Since the slippage produced in the clamps is measurable, it is possible to apply an approximate correction to reduce the experimental error.

STATISTICAL ANALYSIS OF YARN AND FILAMENT IRREGULARITY. PART 1. PRINCIPLES AND PRACTICAL APPLICATION. H. W. Giesekus. Faserforsch. u. Textiltech. 10, No. 6: 275-282; No. 7: 338-345 (1959). In German. Through BCIRA 39: 3685 (1959). (4231)

Mathematical methods required for the statistical analysis of yarn and filament irregularity are reviewed. The characteristic statistical functions (autocorrelogram, spectrum, and variance-length curve) are defined, and their relationship is established. The most important types of statistical functions are discussed, and the difficulties in their accurate determination from the given test material and the advantages and disadvantages of various characteristic functions are pointed out. Quantitative methods and devices for carrying out statistical analyses are described, and reference is made to some general principles on which to develop suitable devices.

CONTRIBUTION TO TESTING YARN TWIST. F. Lopez-Amo and L. Alvarez. Ingenieria Textil 26, No. 137: 108-113 (Mar./Apr. 1959). In Spanish. Through BCIRA 39: 3684 (1959). (4232)

It is shown that the detwisting/twisting method for testing yarn twist produces an error which, when expressing the twist in tpm, is of the order of 3%. In order to reduce this error it is advisable to carry out at least 25 tests on a small bobbin wound in the same way as those under industrial conditions.

COMPARISON TABLES FOR YARN COUNTS. H. Eigenbertz. Z. ges. Textil-Ind. 61, No. 11: 432-437 (1959). In German. Through BCIRA 39: 3683 (1959). (4233)

The tex system and principles of the tables for the conversion of metric count of (Nm) into tex are discussed, and two nomograms are given which enable the user to convert in a simple manner one count system into another.

TESTING THE ABRASION RESISTANCE OF SIZED YARNS. S. Massamji and R. Gescheidt. Textil 14, No. 5: 176-179 (1959). In Czech. Through BCIRA 39: 3688 (1959). (4234)

The method of measuring the abrasion resistance of sized yarns is described, a comparison being made between the results obtained on the apparatus developed by the authors and those from the Kovostav tester.

## Fabrics E3

COTTON DUCK FOR WEATHERING TESTS. P. J. Hannan. (Letter to the editor). J. Soc. Dyers Colourists 75: 460 (Sept. 1959). (4235)

Cotton duck designed particularly for the easy preparation of 1 in. ravelled strips such as those used in soil-burial and weathering tests is reported. 2 refs.

HOW TO ANALYZE TERRY FABRICS. T. Hargreaves. Textile Mfr. 85: 407-410 (Sept. 1959). (4236)

See also abstr. 3420/58. Photos.





VARIANCE ANALYSIS OF FABRIC IRREGULARITY. W. Wegener and H. Gendriesch. Z. ges. Textil-Ind. 61, No. 15: 606-610 (1959). In German. Through BCIRA 39: 3694 (1959). (4237)

A simple variance analysis is described by means of which it is possible to determine the uniformity of a test material. If, on dividing the measuring values into groups, the mean values of the groups deviate from each other more than it would be expected from the average difference between the individual values within these groups, the statistical variance analysis makes it possible to ascertain whether or not systematic deviations are present. It is shown how the variance analysis is carried out and how the results are used for evaluating the fabric regularity.

SIMPLE METHOD FOR THE PREPARATION OF FABRIC SECTIONS. N. Bigler. SVF Fachorgan Textilveredlung 14, No. 5: 296-298 (1959). In German. Through BCIRA 39: 3692 (1959). (4238)

The simple method, which was briefly mentioned in a previous publication (abstr. 170/58) and is described now in greater detail, requires a hand microtome, a hand spreading device, a razor or microtome blade with handle, corks fitting into the microtome, cellophane paper, a coating agent (e.g. aqueous polyvinylacetate or polyacrylic resin emulsion), slides, cover glasses, and an embedding agent for the sections (e.g. Canada balsam, paraffin oil or glycerine). The method is suitable for determining dye penetration in a fabric or controlling the distribution of resins in textiles.

ON THE TEAR STRENGTH OF COTTON FABRICS. PART 1. F. Nestelberger. Textil-Praxis 14, No. 7: 715-718 (1959). In German. Through BCIRA 39: 3697 (1959). (4239)

Reference is made in particular to the Elmendorf-Tester, whose principles and construction are described. Evaluation of the tear strength, standardization of the apparatus, and the difference between tear- and tensile-strength are discussed.

DIRECTIONS FOR THE EVALUATION AND TESTING OF THE TENSILE STRENGTH OF HEAVY FABRICS. German Research Inst. for the Textile Ind., Reutlingen-Stuttgart. Melliand Textilber. 40, No. 7: 758-759 (1959). In German. Through BCIRA 39: 3696 (1959). (4240)

The textile testing stations at M.-Gladbach, St. Gallen, Wuppertal, and Reutlingen carried out comparative tests on various heavy fabrics. The most important practical results are summarized in this research report.

WASH-AND-WEAR RATINGS: SUBJECTIVE AND OBJECTIVE. AATCC Washington Sect. Am. Dyestuff Reptr. 48: 57-62 (Oct. 19, 1959). (4241)

Various subjective methods for evaluating wash-and-wear appearance were used to rate a number of fabrics varying in degree of wrinkling, color, construction, luster, and fiber content. Most methods correlated rather well with each other. The correlation of the subjective ratings and the objective results obtained with a Wrinklemeter was very good. Graphs, tables, 3 refs.

KNITTED FABRIC ANALYSIS. R. W. Mills. Hosiery Times 32: 31-32 (Oct. 1959). (4242)

The analysis of a small sample of a typical striped jersey fabric is described as an example of the basic techniques used in fabric analysis. Photo, diagrs.

## Other E4

IMPORTANCE OF APPLIED TESTING METHODS FOR TEXTILE FINISHING, AND THEIR STANDARDIZATION AS REGARDS DYES AND SURFACE ACTIVE ASSISTANTS. G. Schwen. Z. ges. Textil-Ind. 61, No. 11: 449-454; No. 12: 483-490 (1959). In German. Through BCIRA 39: 3593 (1959). (4243)

It is shown that the evaluation of dye fastness can be effected only by determining the fastness properties of dyeings of a certain color depth, while surface-active assistants can be directly evaluated from their behavior during technical application. Some simple methods giving reproducible results (adopted as standard methods) and testing devices are described. The development of international cooperation in the field of dyestuffs is mentioned; it has only recently commenced in the field of surface-active agents.

DEVELOPMENT AND COMPARISON OF TWO X-RAY METHODS FOR DETERMINING THE CRYSTALLINITY OF COTTON CELLULOSE. J. H. Wakelin, H. S. Virgin, and E. Crystal (Textile Research Inst.). J. Appl. Phys. 30: 1654-1662 (Nov. 1959). (4244)

Two x-ray methods have been developed for determining the crystallinity of cellulose using a Geiger counter spectrometer. The two methods were applied to 6 native cotton varieties, to a cross-bred variety, and to 2 cottons chemically modified with ethylamine. The x-ray scattering curves for each of the 9 samples were compared with those from a highly crystalline sample, a cotton hydrolyzed in HCl, and an amorphous cotton sample to provide a relative measure of crystallinity, or crystalline index. Graphs, tables, 40 refs.

LITHIUM CHLORIDE MOISTURE METER. H. Ruprecht. Spinner u. Weber 77, No. 14: 774-775 (1959). In German. Through BCIRA 39: 3657 (1959). (4245)

The moisture meter described consists of an indicator thermometer, on the shaft of which is mounted a special wick saturated with lithium chloride solution and covered by a heating coil. The solution in the wick takes up the moisture from the surrounding air in an amount corresponding to the degree of air humidity. The heated coil causes the water to evaporate so that the remaining salt solution is able to absorb further amounts of moisture from the air until after a certain time, an equilibrium is established between the coil temperature and the temperature indicated by the thermometer, which shows accurately the temperature required for evaporating the absorbed water; the absolute moisture content of the air is read off in g water/cu. m air. The measuring component of the instrument is coupled with a second measuring part which responds only to room temperature; both values are combined by a special construction to give the relative humidity which can also be read directly off a corresponding scale. The moisture meter can be used for determining the moisture content in drying chambers, conditioning installations, etc.



SEMI-MICRO METHOD OF HIGH ACCURACY FOR THE DETERMINATION OF SULFUR IN WOOL. B. J. Myers (New Zealand Wool Ind. Research Inst.). J. Textile Inst. 50: T494-T503 (Aug. 1959). (4246)

An accurate method, based on many hundred assays, is given for the determination of sulfur in samples of approximately 0.2 g of wool. It gives highly repeatable results, as evidenced by the small range of 3.21-3.32% sulfur with a standard error of 0.003%, for 61 determinations on a Merino top and the quantitative recovery of wool sulfur in the presence of potassium sulfate. The analytical procedure involves the wet oxidation of the sulfur to sulfuric acid by a nitric-perchloric acid mixture, and the subsequent precipitation and weighing of barium sulfate. The use of potassium dichromate as a catalyst for the oxidation, and as an indicator for its end point is discussed. Graphs, tables, 6 refs.

HELIOSTAT INSOLAMETER C.R.I.T. J. Henno and R. Jouhet. Bull. Inst. Textile France No. 81: 95-103 (May 1959). In French. Through BCIRA 39: 3704 (1959). (4247)

The apparatus described makes it possible to effect sunlight exposures under optimum conditions, regardless of the season and the time of the day. The exposure panel of the apparatus is adjusted accurately in a position perpendicular to the sun's rays, and a luxmeter is fitted on the panel, which immediately records the lux units received by the samples, adds them up at the end of the exposure and, if necessary, controls a screen darkening the sample and stopping the lux counter (below 20,000 lux hr).

# MILL MANAGEMENT F

## Industrial engineering F1

CENTRALIZED PRODUCTION CONTROL. D. Brunnschweiler. Textile Mfr. 85: 415-417 (Sept. 1959). (4248)

An appraisal of a central production control system installed at Filatures et Tissages de Wittenheim, which comprises a spinning section of 3,500 ring spindles, and a weaving section of 174 single shuttle automatic looms.

VISUAL PRODUCTION PLANNING AND CONTROL SYSTEM. Hosiery Trade J. 66: 90-93 (Oct. 1959). (4249)

The installation in a hosiery mill of the Taskmaster system, consisting of a capacity load board and two boards showing day-to-day individual machine loading, is described. Photos.

CONTROLLED PROFITS. R. M. Ashner. Textile Bull. 85: 43-45 (Nov. 1959). (4250)

How proper organization can add to mill profits.

A CONTROL MODEL FOR WASTE PERFORMANCE IN A COTTON SPINNING MILL. L. A. Johnson. Master's thesis, Georgia Inst. of Technol., Atlanta, Ga. 1959. 81 p. (4251)

IMPROVEMENTS IN SPINNING COSTS AND QUALITY. C. Dean (Russell Mfg. Co.). Textile Bull. 85: 51-52, 83 (Nov. 1959). (4252)

How modernization, cleanliness, and constant quality controls led to improved spinning costs and quality at Russell Mfg. Co. Photos, table.

UNDEREMPLOYMENT AND PIECE WAGES IN MULTIPLE MACHINE OPERATION. K. Franke. Textil-Praxis 14, No. 7: 726-728 (1959). In German. Through BCIRA 39: 3785 (1959). (4253)

The relationship between efficiency and increased efficiency and wages of fully and not fully employed workers is explained with reference to multimachine operation.

## Plant and equipment F2

MACHINE SHOP: A VITAL LINK IN TEXTILE MAINTENANCE. PART 1. J. V. Phillips. Textile Mfr. 85: 404 (Sept. 1959). (4254)

The importance of the textile machine shop is noted, and the need for its central location with respect to other mill buildings is stressed.

PREVENTIVE MAINTENANCE CAN CUT COSTS AND INCREASE PRODUCTION. R. E. Henderson (Chatham Mfg. Co.). Textile Bull. 85: 53-54 (Nov. 1959). (4255)

The basic approaches used by a mill in developing a preventive maintenance program are described. Graphs.

RUBBER COVERED ROLLS: HOW THEY ARE PRODUCED. Carolina Rubber Hose Co. Textile Bull. 85: 79-82 (Nov. 1959). (4256)

Rubber roll covering procedures are described. Photos.

INDUSTRIAL VACUUM CLEANERS FOR TEXTILE MACHINES. Nippon Cleaner Co. Ltd. J. Textile Machy. Soc. Japan 5: 63-64 (June 1959). (4257)

Features of the type FA-31 vacuum cleaner for looms and the FA-14 for spinning frames are described and illustrated. Diagrs.

SYMPOSIUM ON THE AUTOMATION OF TEXTILE EQUIPMENT. Bull. Inst. Textile France No. 81: 7-86 (May 1959). In French. Through BCIRA 39: 3707 (1959). (4258)

The French Textile Institute, supported by the National Centre of Automation and the Union of Textile Equipment Constructors, held in March 1959 a conference, at which the following papers were presented: Introductory report, by P. Maillard, p. 9-12; Industrial automation, by _. Chalvet, p. 13-24; The contribution of electronics to automation, by J. F. Dusailly, p. 25-35; Some problems of electrical automation in the textile industry, by _. Wilfart, p. 37-65; Development of textile metrology, by P. Kassenbeck, p. 57-70; Development of automation in spinning, by E. Bouchez, p. 71-77; Development of automation in weaving, by H. Duquesne, p. 79-86.

BUILDING MATERIAL COSTS FOR PLANT CONSTRUCTION. S. B. Roberts. Textile World 109: 68-69 (Nov. 1959). (4259)

Comparative costs of exterior walls, floors, and roofs are given. These figures are based on 1959 labor and material costs in the South Carolina area, the center of the U. S. textile industry.

# SCIENCES G

## Chemistry G1

CLEANING PAPER MACHINE FELTS. R. H. Beaumont and J. L. Hanchette (F. C. Huyck & Sons). Paper Trade J. 143: 40-42 (Mar. 16, 1959); 40-43 (June 1, 1959); 32-34 (Aug. 3, 1959). (4260)

Part 1. Chemical cleaning agents. Part 2. Chemical methods for removing specific plugging materials. Part 3. Practical cleaning techniques. Photos, diagrs, tables.

ULTRAVIOLET ABSORBERS FOR PLASTICS. R. A. Coleman and J. A. Weicksel (Am. Cyanamid Co.). Modern Plastics 36: 117-121, 198, 200 (Aug. 1959). (4261)

Ultraviolet absorbers protect plastics from photochemical degradation by preferentially absorbing the destructive, high-energy ultraviolet and re-emitting this energy at nondestructive wavelengths. Graphs, 25 refs.

POLYMER PROGRESS: POLYTHIOLESTERS. Man-Made Textiles 36: 53-54 (Oct. 1959). (4262)

Three simple methods of preparing polythiolesters from organic thiols and dicarboxylic acids, their esters, or acid halides (USP 2 870 126) are described.

ACTION OF SULFURIC ACID ON WOOL. PART 3. ISOLATION AND ANALYSIS OF THREE PREPARATIONS FROM THE WOOL FIBER. R. L. Elliott, R. S. Asquith, and D. H. Rawson (Bradford Inst. Technol.). J. Soc. Dyers Colourists 75: 455-460 (Sept. 1959). (4263)

Three structural components isolated from the wool fiber, two by acid treatment and one by alkali treatment, were studied. Each treatment was followed by specific analyses in an attempt to define the purity of the final products. Total amino acid analyses were performed on these products when the specific analyses approached a constant value and the microscopic examination indicated that a well defined residual membrane was present. The results clearly show that the two membranes isolated by acid treatment differ from each other, but that the third may be identical with one of these. All the membranes resistant to attack have a low content of long-side-chain amino acids, and in one case an exceptionally high cystine content was found. Photomicrographs, tables, 34 refs.

REACTION BETWEEN THIOGLYCOLLATE AND WOOL PROTEINS. J. P. E. Human and P. H. Springell (C. S. I. R. O. Wool Research Labs.). Australian J. Chem. 12: 508-522 (Aug. 1959). (4264)

Graphs, tables, 33 refs.

SOLUBLE WOOL PROTEINS. PART 3. OPTICAL ROTATION. E. F. Woods (C. S. I. R. O. Wool Research Labs.). Australian J. Chem. 12: 497-507 (Aug. 1959). (4265)

The optical rotations of 3 soluble wool keratin derivatives were measured in a large number of solvents using the sodium D line. A wide range of values was recorded. The optical rotations of the proteins derived from wool appear to be influenced by the methods used to solubilize the proteins. Graphs, tables, 27 refs.

SORPTION OF WATER VAPOR BY CELLULOSE AND POLYMERS AT HIGH HUMIDITIES. T. Kawai. J. Polymer Sci. 37: 181-198 (May 1959). Through BCIRA 39: 3759 (1959). (4266)

Sorption of water vapor by cellulose and other polymers at high humidities is treated as a process of solution of water into the disordered regions of the polymer, with deviation from the simple solution theory because of restrictions on the swelling of the system by the insoluble ordered regions. The treatment follows the principles (with some modification) of Rowen and Simha.

DEGREE OF POLYMERIZATION AND ITS DISTRIBUTION IN CELLULOSE RAYONS. PART 9. THE INFLUENCE OF DISTRIBUTION OF DEGREE OF POLYMERIZATION ON THE MECHANICAL PROPERTIES OF MONOFILAMENTS. R. J. E. Cumberbirch (Shirley Inst.). J. Textile Inst. 50: T528-T547 (Sept. 1959). (4267)

It was found that the tenacity of a filament can be computed from its DP distribution and relations between tenacity and DP for filaments made from fractions. Neither the number-average nor the weight-average DP of a blend is a reliable index of the tenacity of filaments prepared from it. Graphs, tables, 16 refs.

X-RAY STUDY OF PARTIALLY BENZYLATED COTTON CELLULOSE. J. J. Creely, D. J Stanonis, and E. Klein. J. Polymer Sci. 37: 43-49 (May 1959). Through BCIRA 39: 3767 (1959). (4268)

An x-ray study has been made of partially benzylated cellulose obtained from mercerized cotton yarn by means of a recently developed technique. The formation of a new crystal lattice for benzyl cellulose with a degree of substitution less than one has been observed. The new lattice indicates a considerable distension of the original cellulose II unit cell present in the mercerized yarn. Application of heat and tension was found to cause considerable improvement in crystallinity and degree of crystallite orientation of the benzylated cotton.

PROPERTIES OF TEXTILE MATERIALS. PART 8. ABOUT pH. D. A. Clibbens. J. Textile Inst. 50: P522-P542 (Sept. 1959). (4269)

The significance of pH in textile technology is analyzed. Graphs.

SOME OBSERVATIONS ON THE MECHANISM OF DETERGENCY. D. G. Stevenson. Reply: R. P. Harker. (Letters to the editor). J. Textile Inst. 50: T548-T552 (Sept. 1959). (4270)



KINETICS OF SWELLING OF CUPRAMMONIUM FIBERS IN WATER. E. A. Shukalova and A. A. Konkin. Tekhnol. Tekstil. Prom. No. 1: 141-147 (1959). Through BCIRA 39: 3674 (1959). (4271)

Coefficients of absorption of water and the velocity constants of swelling in water of unstretched fibers are presented. They were calculated from radius measurements at 17.2, 27.2, and 37.1° C. The energies of activation for diffusion and swelling are also given.

## MISCELLANY H

COTTON CONSUMPTION IN THE UNITED STATES: A STUDY IN ELASTICITY OF DEMAND. M. K. Horne, Jr. (Nat. Cotton Coun. of Am.). Intern. Rev. Cotton Allied Textile Inds. 27: 238-249 (Sept. 1959). (4272)

CLOTHING RESEARCH IN HOME ECONOMICS, 1925-1958. K. Anspach. J. Home Econ. 51: 767-770 (Nov. 1959). (4273)

FIFTY YEARS OF RESEARCH IN TEXTILES. F. E. Petzel. J. Home Econ. 51: 701-704 (Oct. 1959). (4274)

A brief survey of textile research in college and university home economics departments.

COMPETITIVE POTENTIAL OF THE U. S. COTTON INDUSTRY. C. B. Cox and V. W. Pherson. Harvard Univ. Graduate School of Business Admin., Boston. 1959. 201 p. $3.00. (4275)

Contents: Introduction; Present position of the cotton industry; Factors affecting the competitive position of U. S. cotton; Effect of changes in real income on the cotton industry; Effect of changes in price on the cotton industry; Effect of quality on cotton consumption; Effect of promotion on cotton's competitive position; Effect of trade arrangements on the market for cotton; Courses of action for the cotton industry. Bibliography: p. 191-201.

COTTON MANUFACTURING IN THE SOUTHEAST: AN HISTORICAL ANALYSIS. J. Blicksilver. Georgia State College of Business Admin., Atlanta, Ga. 1959. 176 p. Studies in business and economics. Bull. no. 5. $1.50. (4276)

This study is not intended to be a definitive history of the southern cotton textile industry, but rather an evaluation and interpretation of the factors which led to the establishment and growth of the industry in the Southeast, to assess its changing role and significance in the region, and to suggest its possible future orientation. References.

TEXTILE INDUSTRY OF THE USSR. G. Pikovsky. Am. Fabrics No. 47: 36-37 (Fall 1959). (4277)

A report on textiles in the USSR written by the Chief Textile Industry Expert of the State Scientific and Engineering Comm. under the USSR Council of Ministers.

BOOKS ABOUT TEXTILES: A CLASSIFIED LIST OF RECENTLY PUBLISHED LITERATURE. A. F. Kertess. Dyer 122: 513-515 (Oct. 23, 1959). (4278)

# PATENT CHECKLIST

U. S. patents may be obtained from the U.S. Patent Office, Washington, 25, D.C., for 25¢ a copy. Photostatic copies of foreign patents are also available. Charges for these photostats are based on the number of pages in the patent.



## FIBERS A

### Natural fibers A1

COTTON GINNING MACHINE. F. Whitehead (to T. M. M. (Research) Ltd). BP 815 932, July 1, 1959. Through BCIRA 39: 3488 (1959). (4279)

The driving shaft for a Macarthy gin is mounted so that it enters the machine through one frame only. The exterior part of the shaft carries pulleys or the like for connection with the power supply, and also pulleys for driving the leather roller and pusher board; the enclosed end of the shaft carries eccentrics or the like for the oscillating operation of the beater shaft. The stripping roller is driven by a connection with the leather roller.

## YARN PRODUCTION B

LIQUID TREATMENT OF FIBROUS MATERIAL. H. Branton (to Courtaulds Ltd). BP 816 674, July 15, 1959. Through BCIRA 39: 3490 (1959). (4280)

A trough with a perforated bottom is moved to and fro in a bath containing the treatment liquid in such a way that in the forward position the trough is deeper than in the rearward position. The fibrous material is run through the trough, and alternately rests on the trough (in the rearward position) and floats in the liquid (in the forward position).

TOW CRIMPING APPARATUS. A. J. Fisher and R. E. Jones (to Imp. Chem. Inds. Ltd). BP 816 778, July 22, 1959. Through BCIRA 39: 3495 (1959). (4281)

A crimping apparatus of the nip roll and stuffing box type has a guide that feeds the tow of filaments into the nip in the form of a ribbon. The guide is roughly an oval or oblong slit in a one-piece stainless steel device that fits into the nip without actually touching the rollers.

IMPROVING CARDABILITY OF POLYAMIDE FIBERS. G. Hennemann (to Am. Enka Corp.). USP 2 909 445, Oct. 20, 1959. (4282)

The fibers are impregnated first with an aqueous acidic solution of a water-soluble polyanion-active polyvinyl compound and then with a monomeric monoactive substance, e.g. an alkyl trimethyl ammonium compound.



MANUFACTURE OF NYLON STAPLE FROM TOW. N. Benninga, J. E. Johnston, Jr., R. T. Lynch, P. W. Markwood, and R. L. Parks (to Am. Enka Corp.). USP 2 908 944, Oct. 20, 1959. (4283)

Tow still containing water-soluble materials is drawn, crimped, washed, and cut into staple lengths.

HEAT SETTING MEANS FOR FALSE TWIST CRIMPING APPARATUS. R. S. Bley (to Beaunit Mills). USP 2 908 961, Oct. 20, 1959. (4284)

### Carding and combing B2

STOP MOTIONS FOR CARDING ENGINES. J. Miller (to Fine Spinners & Doublers Ltd). BP 816 442, July 15, 1959. Through BCIRA 39: 3533 (1959). (4285)

A small box with its rear open is arranged on an arm or bracket in front of the front calendering rollers of the carding engine. The arm or bracket is attached to a horizontal shaft across the front of the machine. If the sliver breaks it accumulates in the box until enough pressure is developed to turn the shaft. This causes the dandy lever catch to be tripped, with consequent stopping of the machine.

COTTON CARDING ENGINE. H. Ohnishi (Japan). USP 2 908 046, Oct. 13, 1959. (4286)

The machine includes several revolving flat cards and a roller card with a stripper and worker between each pair of flat cards.

CARDING MACHINE LICKERIN. J. F. Lehman. USP 2 908 047, Oct. 13, 1959. (4287)

The annular teeth-carrying members are mounted diagonally to the longitudinal axis of the lickerin roll so that a zig-zag motion is imparted to the teeth-carrying member.

### Spinning, winding, twisting B4

SPINDLE SUPPORT AND BEARINGS. A. M. Treyer. USP 2 909 027, Oct. 20, 1959. (4288)

Bearings for supporting the cylindrical drum which carries and rotates the spindle are cushioned with respect to the drum to prevent its axial movement.

RING LUBRICATION IN RING SPINNING AND DOUBLING FRAMES. J. P. Turnbull (to Eadie Bros. & Co. Ltd). BP 815 407, June 24, 1959. (Addition to BP 755 454). Through BCIRA 39: 3126 (1959). (4289)

The parent invention related to a ring with a wick lying in a peripheral groove to convey lubricant through passages to the inner and upper bearing surfaces. It is now proposed to locate the wick in curved recesses at the inner edge of the top surface of the ring at each of the positions where the wick is required to emerge for lubricating the top surface.

FALSE TWIST SPINDLES. E. P. R. Scragg and M. Nava (to Ernest Scragg & Sons Ltd). BP 815 650, July 1, 1959. Through BCIRA 39: 3535 (1959). (4290)

The rotating tube through which the yarn is passed carries at the exit end two diametrically opposed resilient hooks that tend to spread out under the centrifugal force. The yarn passes through one hook at an inclination to the axis of the tube and then crosses the tube to the other hook.

FALSE TWISTER. H. M. Brown (to Clemson Agri. Coll. of S. C.). USP 2 908 133, Oct. 13, 1959. (4291)

Twister for condensing sliver and roving consists of an endless belt supported by a pair of pulleys. The belt is in a crossed, face-to-face relation between the pulleys, and the strand is guided between the belt faces.

RING DEPRESSOR SYSTEM FOR RING TWISTING APPARATUS. W. Bakker (to Am. Enka Corp.). USP 2 909 026, Oct. 20, 1959. (4292)

Coupling system between depressible twisting ring for forming a transfer tail and traversing beam, which may be easily disconnected but which, during twisting, accurately positions the ring with respect to the spindle.

## Yarns B5

KNOTTABLE GLASS FIBER STRAND. R. S. Owens. USP 2 903 779, Sept. 15, 1959. (4293)

High tensile strength, abrasion resistant yarns prepared by plying together individual elastomeric coated glass fibers which are then bonded together by a shroud coating.

PLASTIC SEWING THREAD SPOOL. M. Curry (to Am. Thread Co.). USP 2 908 093, Oct. 13, 1959. (4294)

Molded spool with means for attaching labels at each end without the use of an adhesive.

# FABRIC PRODUCTION C

## Warping, slashing, yarn preparation C1

DEVICE FOR SEPARATING SELVAGE THREAD FROM LEASED WARP THREADS. A. Altenweger (to Zellweger AG). USP 2 907 092, Oct. 6, 1959. (4295)



WINDING MACHINE TRAVERSE MECHANISM. R. Junghanss and M. Kührnich (to VEB Spinnerei- und Zwirnerei-Maschinenbau). BP 815 649, July 1, 1959. Through BCIRA 39: 3559 (1959). (4296)

A device for regulating the pressure between the traverse drum and the package on a winding machine in which the package holder has a swivel mounting comprises at least one segment-shaped member fixed to the holder and a friction band that passes around the curved surface of this member. As the holder moves away from the traverse growth (as the package grows), the area of contact between the band and the member decreases.

SPOOL HOLDERS FOR WINDING MACHINES. F. J. Merckel (to Lansil Ltd). BP 815 690, July 1, 1959. Through BCIRA 39: 3560 (1959). (4297)

Spool holder for winding and doffing parallel-wound packages is supported horizontally opposite a drive roller in such a way that at least 3 spools may be brought in turn into contact with the drive roller. Foot-operated means are used for releasing or locking the holder.

MECHANISM FOR SELECTING WARP THREADS. G. Roberts (to Wool Inds. Research Assoc.). BP 816 171, July 8, 1959. Through BCIRA 39: 3565 (1959). (4298)

Device for selecting threads arranged in an end-and-end lease around 2 lease rods comprise a traversing carrier mechanism having 2 distinct selector hooks which are set to reciprocate above and at each side of the line of lease intersection, and a secondary end separator and locator at some distance from one lease rod along the warp threads.

HIGH SPEED WINDING APPARATUS. D. S. Adams and J. F. Bowling (to E. I. du Pont de Nemours & Co.). USP 2 907 165, Oct. 6, 1959. (4299)

Increased winding rates are achieved by the use of a spindle-supported spool rotated in one direction and a guide ring supported on air bearings driven in the opposite direction about the spool.

WARPING MACHINE ELECTROMAGNETIC YARN TENSIONING DEVICE. D. J. Mindheim and H. C. Lindemann (to Lindly & Co.). USP 2 907 535, Oct. 6, 1959. (4300)

PNEUMATIC DUST REMOVAL FOR WINDING MACHINES. S. Fürst (Germany). USP 2 908 029, Oct. 13, 1959. (4301)

The air ducts supplying the suction air for operating pneumatic dust and lint removal devices are incorporated into the supporting structure of the winding frame.

## Weaving C2

LOOM STOP MOTION SYSTEM. W. F. Burgiss (to Chatham Mfg. Co.). USP 2 906 298, Sept. 29, 1959. (4302)

Stop motion system embodying a counter for recording the number of times the loom is stopped as a result of yarn breakage.

LAY GUARD. C. C. Bodel and D. A. Glenn (to Linen Ind. Research Assoc.). BP 814 629, June 10, 1959. Through BCIRA 39: 3166 (1959). (4303)

A flat strip of transparent plastic, capable of withstanding the impact of a flying shuttle, is attached to a bar mounted at its ends in bearing on the lay cap and held vertically in front of the path of the shuttle by means of springs that allow the guard to be pulled to a horizontal position under the lay cap when access to the reed is required.

DROPPER PINNING MACHINES FOR USE WITH LOOM WARP STOP MOTIONS. O. N. Thompson and G. Roberts (to Wool Inds. Research Assoc.). BP 816 101, July 8, 1959. Through BCIRA 39: 3566 (1959). (4304)

The invention relates particularly to the mechanism of a dropper pinning machine that selects the droppers from a magazine and feeds them on to successive warp ends in one or more rows as required. The machine is of minimum width but adaptable to a wide range of warp densities, and the selector can tolerate some variation in thickness of the pins. The selector pin that pushes a dropping pin out of the magazine is complemented by a retaining device that prevents the premature movement of the next dropping pin.

SELVAGE FORMATION ON SHUTTLELESS LOOM. V. M. J. Ancet and M. Fayolle (France). USP 2 906 296, Sept. 29, 1959. (4305)

The selvage is formed by folding back into the shed the protruding end of the weft thread corresponding to the last pick by a hook passed through the marginal warp threads. Provision is made for safely catching the protruding end even if it is not perfectly in line with the weft thread itself.

WEFT REPLENISHING APPARATUS FOR MULTIPLE BOX LOOMS. G. A. Renshaw (England). USP 2 906 297, Sept. 29, 1959. (4306)

Two or more shuttle boxes are arranged in a battery one above the other but displaced horizontally so that no one box is vertically above another box.

HARNESS MECHANISM FOR NARROW FABRIC LOOM. C. R. Kronoff (to Crompton & Knowles Corp.). USP 2 907 352, Oct. 6, 1959. (4307)

Operative connection between harness frame and driver made of soft, rubbery material so that it requires no lubrication, as well as acting as a shock absorber.

PICKER STICK MOUNTING. G. S. Simmons, Jr. and R. G. Turner (to Crompton & Knowles Corp.). USP 2 907 354, Oct. 6, 1959. (4308)

Magnetic means to permit the pivotal mounting of the picker stick to yield to prevent breakage of the stick under abnormal operating conditions.

HEDDLE FRAMES. J. J. Kaufmann (to Steel Heddle Mfg. Co.). USP 2 909 199, Oct. 20, 1959. (4309)

Means for bracing the top and bottom rails of the frame between its ends so that the heddle rods are kept in proper alignment and the heddles are freely movable.





LOOM SHAFT ANTIFRICTION BEARING MOUNTING. C. Van Deventer, III (to Nat. Plastics, Inc.). USP 2 907 353, Oct. 6, 1959. (4310)

## Knitting C3

COURSE COUNTING DEVICE FOR HOSIERY. C. G. Newton and C. E. Church (to Marvel Specialty Co.). USP 2 903 889, Sept. 15, 1959. (4311)

RECONDITIONING FULL-FASHIONED KNITTING MACHINES. W. E. Robertson. USP 2 904 979, Sept. 22, 1959. (4312)

Method for rearranging sinkers and dividers after the sinker head has become worn so that the sinkers and dividers occupy different positions in the sinker head.

SPORT SOCK. S. G. Stinson. USP 2 904 980, Sept. 22, 1959. (4313)

Sock with cuff that may be overlapped over top of shoe to leave leg bare, while resisting the tendency of the heel portion to slip down into the shoe.

APPARATUS FOR HANDLING HOSIERY BETWEEN SEAMING AND INSPECTION. F. R. Shoaf. USP 2 905 366, Sept. 22, 1959. (4314)

KNITTING MACHINE. T. D. Efland (to Clemson Agri. Coll.). USP 2 906 109, Sept. 29, 1959. (4315)

The machine involves two sets of hollow thread guides carried by two parallel knitting bars mounted on rock shafts which oscillate so as to move the guides towards and away from a knitting plane. One set of guides forms thread loops over the guides of the second set, and threads from the latter are drawn through the loops to produce a chain. To produce a fabric, one set of guides is shogged laterally relative to the other set one or more guide spaces, as desired, to produce the desired fabric.

SILENCING ATTACHMENT FOR CIRCULAR KNITTING MACHINES. J. A. Bresani. USP 2 906 110, Sept. 29, 1959. (4316)

WARP KNITTING MACHINE FOR CUT PILE FABRICS. R. S. MacCaffray, Jr. (to C. H. Masland & Sons). USP 2 907 191, Oct. 6, 1959. (4317)

The fabric being knitted is held against the fabric engaging surfaces of the trick plate by the heels of the cutting plush points to prevent the fabric from moving forward and damaging the needles as they advance.

SINKER OPERATING MECHANISM FOR TRICOT KNITTING MACHINES. J. Held (to Textile Mach. Works). USP 2 907 192, Oct. 6, 1959. (4318)

Mechanism for coordinating the movement of the sinkers with both the vertical and lateral movements of spring bearded needles.

AUTOMATIC DEVICE FOR STACKING HOSIERY. F. R. Shoaf. USP 2 909 135, Oct. 20, 1959. (4319)

YARN CARRIER ROD DRIVE FOR FULL-FASHIONED KNITTING MACHINES. R. Anke (to Textile Mach. Works). USP 2 907 194, Oct. 6, 1959. (4320)

YARN SEVERING MECHANISM FOR CIRCULAR KNITTING MACHINES. V. H. Butler (to Burlington Inds.). USP 2 908 154, Oct. 13, 1959. (4321)

Mechanism for positioning yarns over the dial caps of multiple feed machines for clipping and automatically severing yarns close to the fabric during yarn changes.

RIB TOP FORMATION ON CIRCULAR HOSIERY MACHINES. G. I. Folsom (to Scott & Williams, Inc.). USP 2 909 048, Oct. 20, 1959. (4322)

Sinkers with high level nebs engage the loops from dial needles to effect proper takeup consistent with the formation of satisfactory rib tops without tucking.

AUTOMATIC MEANS FOR HOLDING DOWN FABRIC IN HAND KNITTING APPARATUS. K. Rees (to Striwa AG). USP 2 909 049, Oct. 20, 1959. (4323)

## Fabrics C4

NEEDLE FELTING LOOMS. B. O'Byrne (to William Bywater Ltd). BP 816 438, July 15, 1959. Through BCIRA 39: 3567 (1959). (4324)

In mechanism for actuating the needle-carrying plate of a needle loom, the plate is connected to the free ends of pivoted arms which are connected by links to a source of power for rocking the arms and thereby reciprocating the plate.

NONWOVEN TUFTED CARPET. P. M. Cole (to E. I. du Pont de Nemours & Co.). USP 2 903 708, Sept. 15, 1959. (4325)

Carpet constructed of a cellular elastomeric base, e.g. sponge rubber, in which is fastened upstanding continuous multifilament yarn pile in parallel rows by means of vertically tensioned threads present in the base material.

DRAPERY HEADER TAPE WITH INTEGRALLY WOVEN HOOK-RECEIVING TUBES. H. Klahre (to Consolidated Trimming Corp.). USP 2 904 080, Sept. 15, 1959. (4326)

ASTRAKHAN PILE CARPET WEAVING. F. W. E. Hoeselbarth (to C. H. Masland & Sons). USP 2 905 202, Sept. 22, 1959. (4327)

ELASTIC FABRIC MANUFACTURE. R. F. Stuewer and J. Kalinowski (to Grove Silk Co.). USP 2 906 001, Sept. 29, 1959. (4328)

Elastic fabric is made from composite yarns made by plying together two components having opposite twists which interact so that the liveliness is ineffective during knitting or weaving. The fabric is then treated to effect differential shrinkage of the yarn components with resultant fabric elasticity.



TERRY CARPET WEAVING. F. W. E. Hoeselbarth (to C. H. Masland & Sons). USP 2 905 203, Sept. 22, 1959. (4329)

Terry pile carpets with a strong back are produced by forming the loops from one set of pile warp ends within the brackets and higher pile projections over another set of pile warp ends raised over the wires.

SELF-BONDED POLYESTER FIBER PAPER. J. K. Hubbard and F. H. Koontz (to E. I. du Pont de Nemours & Co.). USP 2 905 585, Sept. 22, 1959. (4330)

MANUFACTURE OF SYNTHETIC FIBER CREPE FABRICS. H. Fujima and M. Yoshida (Japan). USP 2 906 000, Sept. 29, 1959. (4331)

The fabrics are made from continuous filament yarns treated to impart a high degree of temporary twist, heat treated to set the twist, untwisted in the opposite direction beyond the point of zero twist, and sized.

MAKING PAPERMAKERS WET FELT IN OPEN-ENDED STRIP FORM. J. H. Draper, Jr. (to Draper Bros. Co.). USP 2 907 093, Oct. 6, 1959. (4332)

Tubular felt woven with a lacing element composed of warp yarns soluble in an organic solvent.

TOW TARGET CONSTRUCTION. E. Frey (to Massillon-Cleveland-Akron Sign Co.). USP 2 907 095, Oct. 6, 1959. (4333)

ZIPPER TAPE. J. A. Hendley (to Talon, Inc.). USP 2 907 355, Oct. 6, 1959. (4334)

Beaded edge consisting of a pair of oppositely twisted cords interwoven with the weft thread.

COATED JUTE CARPET BACKING. W. R. Keen and E. J. Grajeck (to Collins & Aikman Corp.). USP 2 908 013, Oct. 13, 1959. (4335)

Jute woven backing coated with latex prior to tufting to prevent distortion by the passage of the tufting needles.

SYNTHETIC FIBER FELT. H. G. Lauterbach and H. M. Norton (to E. I. du Pont de Nemours & Co.). USP 2 908 064, Oct. 13, 1959. (4336)

Coherent, pliable, nonbonded felt made up of coplanar, superimposed layers of synthetic filaments, the filaments in each layer being oriented at an angle relative to those in adjacent layers.

NONWOVEN SUEDELIKE LEATHER SUBSTITUTE. B. Graham (to E. I. du Pont de Nemours & Co.). USP 2 909 456, Oct. 20, 1959. (4337)

Nonwoven mat of polyethylene terephthalate fibers is superimposed on a plied nonwoven mat of nylon fibers, contacted with a neoprene binder, and heated to form a compacted structure. The latter is then stretched to form channels adjacent to the fibers and abraded to give a suedelike appearance.

SYNTHETIC FIBER SEAM-CAULKING MEANS FOR SHIPS. R. C. Berker (to Salem Calking Co.). USP 2 908 134, Oct. 13, 1959. (4338)

The caulking is made up of a strand of synthetic staple fibers in fluffy and twisted condition consisting of 50% nylon and equal amounts of Orlon and Dacron.

MULTIPLE PILE WEAVING OF CARPETS. F. W. E. Hoeselbarth (to C. H. Masland & Sons). USP 2 908 296, Oct. 13, 1959. (4339)

The number of heddles used is reduced by raising one pile warp set and one binder warp set always by the same heddle sets.

OILLESS ANTIFRICTION BEARINGS OF MOLDED MULTI-PLY RESIN BONDED FABRIC. L. A. Runton and H. C. Morton (to Russell Mfg. Co.). USP 2 908 535, Oct. 13, 1959. (4340)

# FINISHING AND CHEMICAL PROCESSING D

## Chemical processes D1

FLUID BED MANUFACTURE OF STARCH. W. A. Scholten's Chemische Fabrieken NV. BP 815 358, June 24, 1959. Summary in BCIRA 39: 3233 (1959). (4341)

STABILIZATION OF ACRYLIC FABRICS. Farbenfabriken Bayer AG. BP 816 532, July 15, 1959. Through BCIRA 39: 3651 (1959). (4342)

Dimensional stability is imparted to polyacrylonitrile fabrics by running them through a bath, at 90-95° C, containing a swelling agent (e.g. formic acid) and a surface-active agent (e.g. a product of the action of ethylene oxide on stearylamine). They are then cooled immediately.

METALIZED SPUN TEXTILE MATERIALS. G. W. Kunsch (Germany). BP 816 906, July 22, 1959. Through BCIRA 39: 3655 (1959). (4343)

The materials (loose fiber, slivers, yarns) are impregnated with natural or synthetic resins and then exposed to metal vapor in a high vacuum.

TIRE CORD TREATING APPARATUS. E. T. Lessig and M. W. Wilson (to B. F. Goodrich Co.). USP 2 889 802, June 9, 1959. (4344)

Apparatus for supplying liquid adhesive to cords while they are moving in a predetermined path and removing surplus liquid by vibrating the cords. Clearer bars keep broken or loose ends from winding around the beaters.

FLAMEPROOFING TEXTILES. R. G. Madeline and J. F. Pathus-Labour (to Firma Deutsche Erdoel AG). USP 2 907 683, Oct. 6, 1959. (4345)

The fabrics are impregnated with a water-soluble alginic acid derivative.



PROCESS FOR DIMENSIONALLY STABILIZING CELLULOSE AND AQUEOUS COMPOSITION USED THEREFOR. W. P. Ericks (to Upson Co.). USP 2 891 019, June 16, 1959. (4346)

Cellulose materials may be dimensionally stabilized against changes in relative humidity by impregnation with the ammonia salt of an organic compound which has a number of hydroxyl groups attached to different carbon atoms in the molecule, with at least one of the hydroxyl groups part of a carboxyl group.

APPARATUS FOR WET PROCESSING OF WEB MATERIALS. W. W. Macomson (to Patex Corp.). USP 2 904 981, Sept. 22, 1959. (4347)

Means for agitating or vibrating fluids at either sonic or ultrasonic frequencies to facilitate rapid penetration of the materials during continuous movement through the fluid.

FABRIC ORNAMENTATION. C. S. Parker and A. Melville (to Bleachers' Assoc. Ltd and Bradford Dyers' Assoc. Ltd). USP 2 905 999, Sept. 29, 1959. (4348)

By operating a compressive-shrinkage machine in reverse, at least one region of a fabric is stretched while adjacent regions are relaxed. The stretched regions are thereby raised from their normal level. The effect may be set, e.g. by impregnating the fabric with a thermosetting resin and applying heat.

FLAME AND CREASE RESISTANT TEXTILES FROM AZIRIDINE CARBOXYALKYLCELLULOSE. W. A. Reeves, J. D. Guthrie, and G. L. Drake, Jr. (to U.S. Secy. Agri.). USP 2 906 592, Sept. 29, 1959. (4349)

The fabrics are produced by impregnating a carboxymethylated cellulosic fabric with a tris(1-aziridinyl) phosphine oxide and heating to cause the latter to react with the carboxy groups of the former.

CREPE FABRIC MANUFACTURE. E. A. Murray and R. W. McCullough (to Deering Milliken Research Corp.). USP 2 907 094, Oct. 6, 1959. (4350)

Fabrics composed of highly twisted organic hydrophobic fiber yarns are immersed in an aqueous bath, the temperature of which is gradually increased to 140° F, which is agitated throughout.

COTTON CYANOETHYLATION. N. M. Bikales, A. H. Gruber, and L. Rapoport (to Am. Cyanamid Co.). USP 2 907 625, Oct. 6, 1959. (4351)

High outputs of cyanoethylated cotton with satisfactory physical properties are obtained in a one bath process at room temperature by the use of 75 to 150% of strong caustic alkali based on the weight of cellulose and 5 to 10 times excess acrylonitrile based on the weight of cellulose.

POLYTETRAFLUOROETHYLENE COATED GLASS FABRICS. J. Hochberg (to E. I. du Pont de Nemours & Co.). USP 2 907 677, Oct. 6, 1959. (4352)

Curl resistant glass fabrics coated on one side only with polytetrafluoroethylene are obtained by applying a light coating of a vinyl polymer on the opposite side.

METAL COATING CELLULOSE FABRICS. A. Bodmer and K. Risch (to Heberlein Patent Corp.). USP 2 907 678, Oct. 6, 1959. (4353)

Noncrocking metallic coatings are obtained by treating the fabric with an antiswelling agent, coating with a water-insoluble resin, and vacuum vaporizing a metal onto the treated fabric.

APPARATUS FOR METALIZING GLASS FILAMENTS. H. Kahn (to B. F. Goodrich Co.). USP 2 909 151, Oct. 20, 1959. (4354)

PEROXIDE BLEACHING OF POLYAMIDE FIBERS. K. Dithmar and E. Naujoks (to Deutsche Gold- und Silber-Scheideanstalt). USP 2 909 404, Oct. 20, 1959. (4355)

Loss of tensile strength during bleaching is prevented by incorporating in the bath small amounts of one of the organic nitrogen compounds claimed, e.g. ethylene diamine, hexamethylene diamine, etc.

FLAMEPROOFING CELLULOSE AND PROTEIN FIBERS. C. A. Redfarn and H. Coates (to Albright & Wilson Ltd). USP 2 909 446, Oct. 20, 1959. (4356)

Compounds formed by subjecting polymeric phosphochloronitride to hydrolysis or hydrazination are cross-linked on cellulose or protein fibers to effect flameproofing.

POLYAMINE-POLYEPOXIDE ADDUCTS FOR WOOL SHRINKPROOFING. C. W. Schroeder (to Shell Develop. Co.). USP 2 909 448, Oct. 20, 1959. (4357)

## Dyeing and printing D2

DISCHARGE PRINTING. P. Krug (to Hardman & Holden Ltd). BP 816 930, July 22, 1959. Through BCIRA 39: 3648 (1959). (4358)

In the discharge printing of nylon, Terylene, or acrylic fiber fabrics the dyed material is printed with a discharge paste containing thiourea dioxide and ammonium nitrate and with a dispersed acetate dye free from azo groups. The order of the applications may be reversed.

PIGMENT PRINTING PASTE. D. J. Guest, J. R. F. Jackson, K. Tickner, and E. J. Vickers (to Imp. Chem. Inds. Ltd). BP 816 985, July 22, 1959. Through BCIRA 39: 3649 (1959). (4359)

The vehicle for the pigment contains a soluble initial condensation product of a thermosetting resin, an aqueous polymer dispersion derived from butadiene, an acrylic amide and an acrylic ester or nitrile, free from halogen substituents, and (preferably) an acidic catalyst of the final thermosetting reaction.

PRODUCING DYED YARN OF SYNTHETIC FIBER TOW. H. K. Houser. USP 2 904 954, Sept. 22, 1959. (4360)

Synthetic fiber tow wound on a perforated hollow shaft is subjected to the action of dye flowing outwardly from the shaft through the windings. The dyed tow is heat stretched, formed into sliver and roving, and spun into yarn.



PRINTING APPARATUS FOR USE WITH PILE FABRICS. F. B. Mercer and S. Shorrock (to Brit. Tufting Machy. Ltd). USP 2 905 085, Sept. 22, 1959. (4361)

The printing solution is applied by means of resilient, cellular material which is subjected to pressure while in contact with the material to cause complete transfer without spreading of the dye.

BASIC AZOMETHINE DYES FOR ACRYLIC FIBERS WITH IMPROVED LIGHTFASTNESS. W. Brunkhorst, E. Kern, and H. Baumann (to Badische Anilin- & Soda Fabrik AG). USP 2 906 588, Sept. 29, 1959. (4362)

DYEING AND PRINTING OF POLYMERS OF ACRYLONITRILE WITH OXAZINE DYES. W. Müller and H. Psaar (to Farbenfabriken Bayer AG). USP 2 906 589, Sept. 29, 1959. (4363)

PRINTING PASTES FOR ACRYLIC FIBERS. C. G. Evans (to Deering Milliken Research Corp.). USP 2 906 590, Sept. 29, 1959. (4364)

Activated printing pastes consisting of an acid dye, a water soluble cupric salt, a water soluble alkali metal salt of an inorganic or lower fatty acid, and a phenylphenol.

DYEING SYNTHETIC TOW. S. L. Abbott (to Abbott Mach. Co.). USP 2 906 593, Sept. 29, 1959. (4365)

Procedure by which large batches of tow, e.g. 250 or 300 lbs, are dyed by forming the tow into a group of interconnected packages, in which the continuous length of tow is doubled on itself, dyeing the group of packages, and carrying the continuous length away from the packages in single thickness.

VAT DYE PRINTING. A. K. Saville (to E. I. du Pont de Nemours & Co.). USP 2 907 624, Oct. 6, 1959. (4366)

The vat dye is suspended in the water phase of a water-in-oil emulsion containing a temporary bonding agent. The emulsion is applied to the fabric which, after drying, is impregnated with a chemical reducing agent to fix the vat dye.

OIL-IN-WATER EMULSION PIGMENT PRINTING PASTES. L. Auer (to J. R. Geigy SA). USP 2 907 720 and 2 907 721, Oct. 6, 1959. (4367)

Noncrocking pigment emulsions are obtained by the use of fatty acid ester resin binders which are emulsion polymerized or aggregated.

PIGMENT PRINTING PASTE. W. Graulich, W. Becker, and O. Bayer (to Farbenfabriken Bayer AG). USP 2 908 658, Oct. 13, 1959. (4368)

Prints fast to rubbing and washing are obtained by the use of a paste consisting of a copolymer resin emulsion, a cross-linking compound, e.g. acetic acid salt of hexamethylene diamine, a pigment, and a thickening agent.

DYEING POLYETHYLENE TEREPHTHALATE SURGICAL SUTURES WITH COAL TAR DYES. R. T. Dowd, E. R. Lieberman, and I. W. Turiansky (to Ethicon Inc.). USP 2 909 177, Oct. 20, 1959. (4369)

## Mechanical processes D3

ELECTROSTATIC FLOCK PRINTING MACHINE. S. M. Schwartz and D. Gross (to Velveray Corp.). BP 814 728, June 10, 1959. Summary in BCIRA 39: 3231 (1959). (4370)

FABRIC HANDLING APPARATUS. Can. Celanese Ltd. BP 814 846, June 10, 1959. Through BCIRA 39: 3240 (1959). (4371)

Traveling means for gripping the edges of a warp knit fabric over a short length to keep them from curling while a heat setting process is being applied to the stitches.

APPARATUS FOR WINDING FABRIC STRIPS. E. C. Kastner (to Akron Standard Mold Co.). BP 815 621, July 1, 1959. Through BCIRA 39: 3654 (1959). (4372)

The invention relates particularly to means for feeding textile strip material, interleaved with a liner, to tire building apparatus without distorting the weft.

EXPANDING HOSE FORM. G. W. F. Moorley, A. O. Wagstaff, and A. G. Edwards (to H. T. H. Peck Ltd). BP 815 750, July 1, 1959. Through BCIRA 39: 3241 (1959). (4373)

The invention relates to a form on which a stocking or sock may be stretched for inspection or treatment. The bulge for the heel is effected by means of a flexible element the core of which is a bicycle chain.

OPACIFYING EFFECTS ON FABRICS KNIT FROM SYNTHETIC FIBERS. M. Foerster and A. Lehmann (Germany). BP 816 004, July 8, 1959. Through BCIRA 39: 3652 (1959). (4374)

The knitted material is brought near to its softening temperature and embossed or pressed with a finely engraved roller.

NAP RAISING MACHINE. Etablissements A. C. Scholaert. BP 816 441, July 15, 1959. Through BCIRA 39: 3653 (1959). (4375)

The invention relates to means for limiting the tension in raised fabric as it comes off a raising drum. A roller is fixed near the exit and provided with means for adjusting the rate of travel of the fabric as it passes over it. The control member rides in a loop of the fabric between the raising drum and the roller and any deviation in its height (i. e. in the length of the loop) causes an appropriate change in the speed of the fabric.

CARPET STORING AND HANDLING ROLLS. C. C. Riemenschneider. USP 2 904 278, Sept. 15, 1959. (4376)

GLAZE-FREE PLEATING OF THERMOPLASTIC FABRICS. M. Liebeskind (to E. I. du Pont de Nemours & Co.). USP 2 906 441, Sept. 29, 1959. (4377)

The fabric to be pleated is separated from the mechanical forms by a synthetic fabric of open construction which is dimensionally stable to the setting conditions used.



ADJUSTABLE CLOTH FEEDING ASSEMBLY FOR CLOTH SPREADING MACHINES. N. Obedin. USP 2 908 493, Oct. 13, 1959. (4378)

# TESTING AND MEASUREMENT E

## Fibers E1

PHOTOELECTRIC APPARATUS FOR MEASURING THE AVERAGE DIAMETER AND DIAMETER DISTRIBUTION OF FIBERS. J. R. Roehrig (to Nat. Research Corp.). USP 2 874 899, Feb. 24, 1959. (4379)

## Yarns E2

PHOTOELECTRIC YARN UNIFORMITY TESTER. Fuji Denshi Kogyo KK. BP 812 634, Apr. 29, 1959. Summary in BCIRA 39: 2944 (1959). (4380)

# MILL MANAGEMENT F

## Industrial engineering F1

METHOD OF REDUCING B. O. D. OF STARCH BEARING EFFLUENT BY ADDITION OF SUBSTITUTED STARCH TO EFFLUENT. J. B. Batdorf (to Hercules Powder Co.). USP 2 865 853, Dec. 23, 1958. (4381)

When starch-containing wastes are discharged into a body of water, the B. O. D. may be reduced by the addition of a water-soluble starch ether in a ratio to the starch of 35/65 - 65/35.

METHOD OF REDUCING B. O. D. OF STARCH BEARING EFFLUENT BY ADDITION OF SUBSTITUTED CELLULOSE TO EFFLUENT. W. J. Sweet (to Hercules Powder Co.). USP 2 865 854, Dec. 23, 1958. (4382)

When starch-containing wastes are discharged into a body of water, the B. O. D. may be reduced by the addition of sodium carboxymethylcellulose in a ratio to the starch of 20/80 - 65/35.

## Plant and equipment F2

DUST PROTECTION ARRANGEMENT FOR TEXTILE MACHINES. R. H. Teupel and H. Baake (to Spinnbau GmbH). USP 2 903 840, Sept. 15, 1959. (4383)

Expandable and collapsible bellows of air-tight material for preventing dust and lint from accumulating on the guiding elements of movable parts.

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